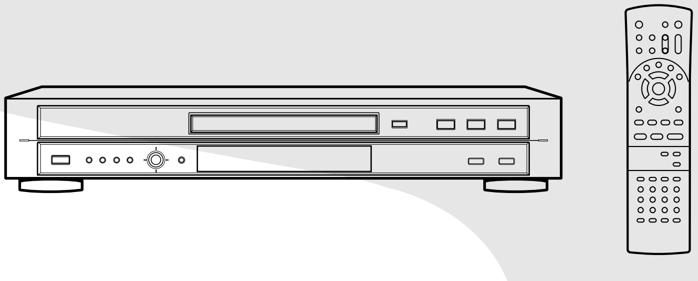
TOSHIBA

FILE NO. 810-200210

SERVICE MANUAL

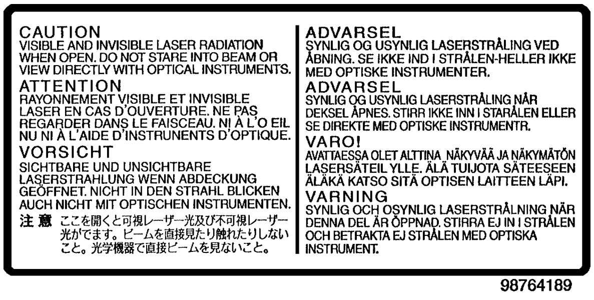
DVD VIDEO PLAYER

SD-3800



Aug., 2002 Ⓢ

LASER BEAM CAUTION LABEL



CAUTION
VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. DO NOT STARE INTO BEAM OR VIEW DIRECTLY WITH OPTICAL INSTRUMENTS.

ATTENTION
RAYONNEMENT VISIBLE ET INVISIBLE LASER EN CAS D'OUVERTURE. NE PAS REGARDER DANS LE FAISCEAU. NI À L'O EIL NU NI À L'AIDE D'INSTRUNENTS D'OPTIQUE.

VORSICHT
SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET. NICHT IN DEN STRAHL BLICKEN AUCH NICHT MIT OPTISCHEN INSTRUMENTEN.

注 意　ここを開くと可視レーザー光及び不可視レーザー光がでます。ビームを直接見たり触れたりしないこと。光学機器で直接ビームを見ないこと。

ADVARSEL
SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. SE IKKE IND I STRÅLEN-HELLER IKKE MED OPTISKE INSTRUMENTER.

ADVARSEL
SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES. STIRR IKKE INN I STARÅLEN ELLER SE DIREKTE MED OPTISKE INSTRUMENTR.

VARO!
AVATTAESSA OLET ALTTINA NÄKYVÄÄ JA NÄKYMÄTÖN LASERSÄTEIL YLLE. ÄLÄ TUIJOTA SÄTEESEEN ÄLÄKÄ KATSO SITÄ OPTISEN LAITTEEN LÄPI.

VARNING
SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. STIRRA EJ IN I STRÅLEN OCH BETRAKTA EJ STRÅLEN MED OPTISKA INSTRUMENT.

98764189

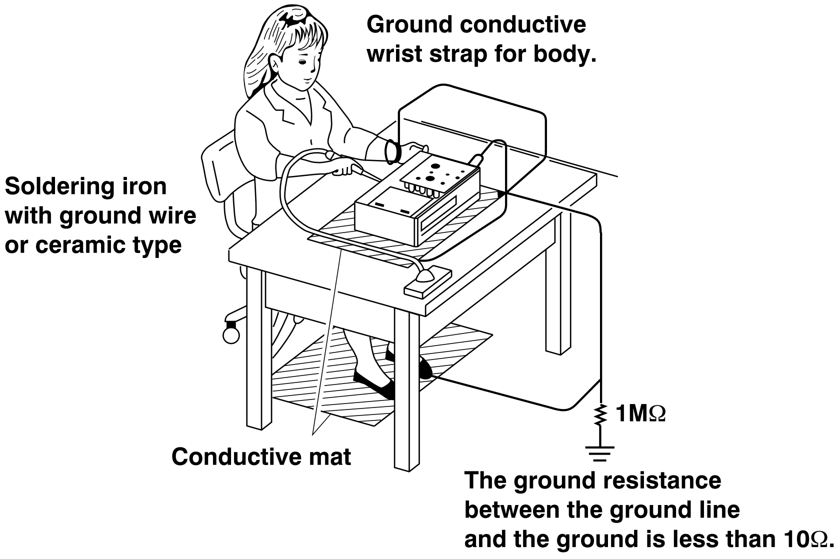
When the power supply is being turned on, you may not remove this laser cautions label. If it removes, radiation of a laser may be received.

PREPARATION OF SERVICING

Pickup Head consists of a laser diode that is very susceptible to external static electricity.

Although it operates properly after replacement, if it was subject to electrostatic discharge during replacement, its life might be shortened. When replacing, use a conductive mat, soldering iron with ground wire, etc. to protect the laser diode from damage by static electricity.

And also, the LSI and IC are same as above.


Ground conductive wrist strap for body.
Soldering iron with ground wire or ceramic type
1MΩ
Conductive mat
The ground resistance between the ground line and the ground is less than 10Ω.

SAFETY NOTICE

SAFETY PRECAUTIONS

LEAKAGE CURRENT CHECK

Plug the AC line cord directly into a 120V AC outlet (do not use an isolation transformer for this check). Use an AC voltmeter, having 5000 Ω per volt or more sensitivity.

Connect a 1500 Ω 10 W resistor, paralleled by a 0.15 µF 150V AC capacitor between a known good earth ground (water pipe, conduit, etc.) and all exposed metal parts of cabinet (antennas, handle bracket, metal cabinet screwheads, metal overlays, control shafts, etc.).

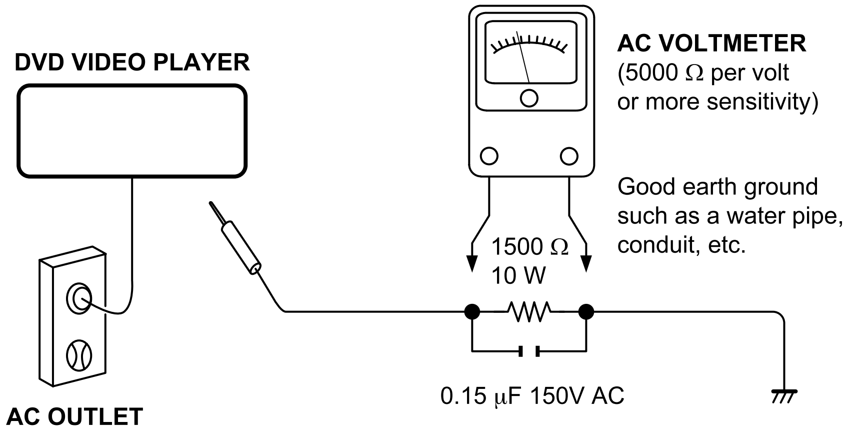
Measure the AC voltage across the 1500 Ω resistor.

The test must be conducted with the AC switch on and then repeated with the AC switch off. The AC voltage indicated by the meter may not exceed 0.3 V. A reading exceeding 0.3 V indicates that a dangerous potential exists, the fault must be located and corrected.

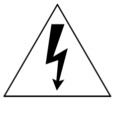
Repeat the above test with the DVD VIDEO PLAYER power plug reversed.

NEVER RETURN A DVD VIDEO PLAYER TO THE CUSTOMER WITHOUT TAKING NECESSARY CORRECTIVE ACTION.

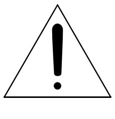
READING SHOULD NOT EXCEED 0.3V



Test all exposed metal.
Voltmeter Hook-up for Leakage Current Check



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

CONTENTS

SECTION 1
GENERAL DESCRIPTIONS

1. OPERATING INSTRUCTIONS
   Specifications
2. LOCATION OF MAIN PARTS AND MECHANISM PARTS
   - 2-1. Location of Main Parts
   - 2-2. Location of Mechanism Parts
   - 2-2-1. Type A
   - 2-2-2. Type B
3. TROUBLESHOOTING
   - 3-1. Main Circuit
   - 3-1-1. Servo System
   - 3-1-2. Location Diagram of Servo Test Point

SECTION 2
PART REPLACEMENT AND ADJUSTMENT PROCEDURES

1. Replacement of Mechanical Parts (Type A)
   - 1-1. Cabinet Replacement
   - 1-1-1. Top Cover
   - 1-1-2. Tray Panel
   - 1-1-3. Front Panel
   - 1-1-4. Tray
   - 1-1-5. Rear Panel
   - 1-2. PC Board Replacement
   - 1-2-1. Main PC Board
   - 1-2-2. Output PC Board
   - 1-2-3. Power PC board
   - 1-2-4. Front PC Board
   - 1-3. Mechanism Parts
   - 1-3-1. Mechanism Chassis Assembly
2. Replacement of Mechanical Parts (Type B)
   - 2-1. Cabinet Replacement
   - 2-1-1. Top Cover
   - 2-1-2. Clamper Stay
   - 2-1-3. Tray Panel
   - 2-1-4. Front Panel and Tray
   - 2-1-5. Rear Panel
   - 2-2. PC Board Replacement
   - 2-2-1. Main PC Board
   - 2-2-2. Output PC Board
   - 2-2-3. Power PC board
   - 2-2-4. Front PC Board
   - 2-3. Mechanism Parts
   - 2-3-1. Mechanism Chassis Assembly

SECTION 3
SERVICING DIAGRAMS

1. STANDING PC BOARDS FOR SERVICING
2. CIRCUIT SYMBOLS AND SUPPLEMENTARY EXPLANATION
   - 2-1. Precautions for Part Replacement
   - 2-2. Solid Resistor Indication
   - 2-3. Capacitance Indication
   - 2-4. Inductor Indication
   - 2-5. Waveform and Voltage Measurement
   - 2-6. Others
3. PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM
4. BLOCK DIAGRAMS
   - 4-1. Overall Block Diagram
   - 4-2. Power Supply Block Diagram
   - 4-3. Front Display, Power Switch Block Diagram
   - 4-4. Main Block Diagrams
   - 4-5. Output Block Diagrams
5. CIRCUIT DIAGRAMS
   - 5-1. Power Supply Circuit Diagram
   - 5-2. Front Display, Power Switch Circuit Diagram
   - 5-3. Main Circuit Diagram
   - 5-4. Output Circuit Diagram
   - 5-5. Motor System Circuit Diagrams
6. PC BOARDS
   - 6-1. Power Supply PC Board
   - 6-2. Power Switch PC Board
   - 6-3. Main PC Board
   - 6-4. Output PC Board
   - 6-5. Front Display PC Board

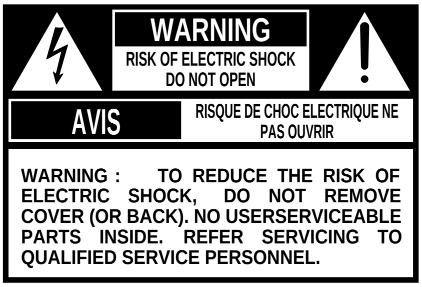
SECTION 4
PARTS LIST

SAFETY PRECAUTION
NOTICE
ABBREVIATIONS
   1. Integrated Circuit (IC)
   2. Capacitor (Cap)
   3. Resistor (Res)
4. EXPLODED VIEWS
   - 4-1. Packing Assembly
   - 4-2. Chassis Assembly (Type A)
   - 4-3. Mechanism Assembly (Type A)
   - 4-4. Chassis Assembly (Type B)
   - 4-5. Mechanism Assembly (Type B)
5. PARTS LIST

SECTION 1
GENERAL DESCRIPTIONS

1. OPERATING INSTRUCTIONS

SAFETY PRECAUTIONS



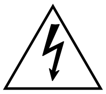
WARNING

RISK OF ELECTRIC SHOCK
DO NOT OPEN

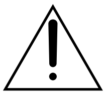
AVIS

RISQUE DE CHOC ELECTRIQUE NE
PAS OUVRIR

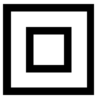
WARNING : TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USERSERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



The symbol for CLASS II (Double Insulation)

WARNING: **TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DANGEROUS HIGH VOLTAGES ARE PRESENT INSIDE THE ENCLOSURE. DO NOT OPEN THE CABINET. REFER SERVICING TO QUALIFIED PERSONNEL ONLY.**

CAUTION: **TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.**

ATTENTION: **POUR EVITER LES CHOCS ELECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU’AU FOND.**

CAUTION: This Digital Video Disc Player employs a Laser System.
To ensure proper use of this product, please read this owner’s manual carefully and retain for future reference. Should the unit require maintenance, contact an authorized service location - see service procedure.

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

To prevent direct exposure to laser beam, do not try to open the enclosure.
Visible and invisible laser radiation when open and interlocks defeated.
DO NOT STARE INTO BEAM.

FCC NOTICE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rule. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.
However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: Changes or modifications made to this equipment, not expressly approved by Toshiba, or parties authorized by Toshiba, could void the user’s authority to operate the equipment.

The instructions shall state that an ALL-POLE MAINS SWITCH with a contact separation of at least 3 mm in each pole shall be incorporated in the electrical installation of the building.

CAUTION: These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

In the spaces provided below, record the Model and Serial No. located on the rear panel of your DVD player.

Model No. ______________________________ Serial No. ______________________________

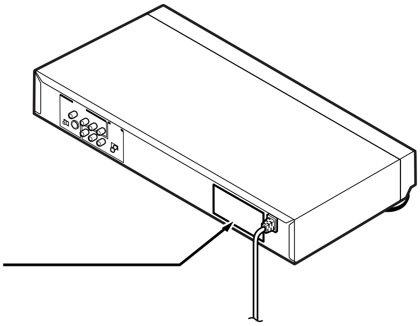
Retain this information for future reference.

Location of the required label

PRODUCT IS CERTIFIED BY THE MANUFACTURER TO
COMPLY WITH DHHS RULE 21 CFR SUBCHAPTER J
APPLICABLE AT THE DATE OF MANUFACTURE.

MANUFACTURED

TOSHIBA CORPORATION
1-1,SHIBAURA 1-CHOME,MINATO-KU.
TOKYO 105-8001,JAPAN

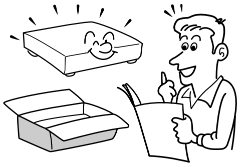


IMPORTANT SAFETY INSTRUCTIONS

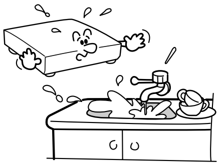
CAUTION: PLEASE READ AND OBSERVE ALL WARNINGS AND INSTRUCTIONS GIVEN IN THIS OWNER'S MANUAL AND THOSE MARKED ON THE UNIT. RETAIN THIS BOOKLET FOR FUTURE REFERENCE.

This set has been designed and manufactured to assure personal safety. Improper use can result in electric shock or fire hazard. The safeguards incorporated in this unit will protect you if you observe the following procedures for installation, use and servicing. This unit is fully transistorized and does not contain any parts that can be repaired by the user.
DO NOT REMOVE THE CABINET COVER, OR YOU MAY BE EXPOSED TO DANGEROUS VOLTAGE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL ONLY.

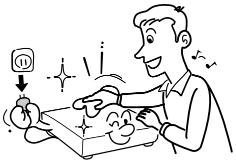
1. Read these instructions.



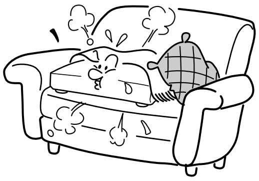
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.



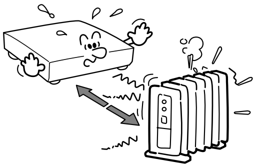
6. Clean only with dry cloth.



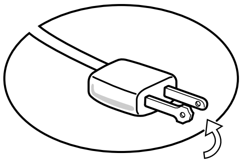
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.



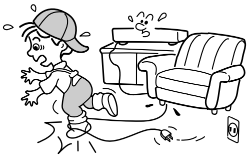
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.



9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

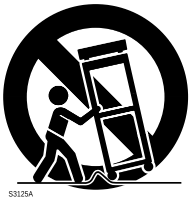


10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.



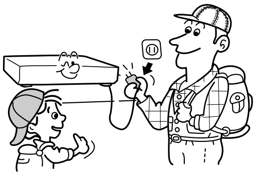
11. Only use attachments/accessories specified by the manufacturer.

12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

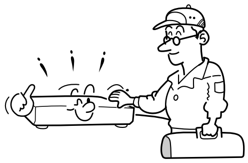


IMPORTANT SAFETY INSTRUCTIONS

13. Unplug this apparatus during lightning storms or when unused for long periods of time.

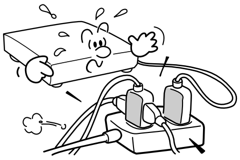


14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



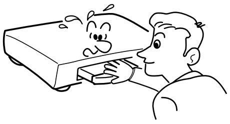
15. When you use headphones, keep the volume at a moderate level. If you use the headphones continuously with high volume sound, it may cause hearing damage.

16. Do not overload wall outlets; extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

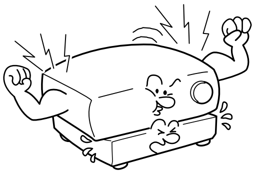


17. Never insert objects of any kind into this apparatus through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the apparatus.

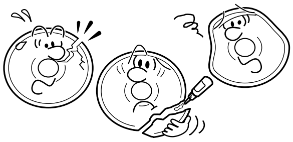
18. Keep your fingers well clear of the disc tray as it is closing. Neglecting to do so may cause serious personal injury.



19. Do not place a heavy object on or step on the apparatus. The object may fall, causing serious personal injury and serious damage to the apparatus.



20. Do not use a cracked, deformed, or repaired disc. These discs are easily broken and may cause serious personal injury and apparatus malfunction.



Precautions

Notes on handling

- When shipping the DVD player, the original shipping carton and packing materials come in handy. For maximum protection, repack the unit as it was originally packed at the factory.
- Do not use volatile liquids, such as insect spray, near the DVD player. Do not leave rubber or plastic products in contact with the DVD player for a long time. They will leave marks on the finish.
- The top and rear panels of the DVD player may become warm after a long period of use. This is not a malfunction.
- When the DVD player is not in use, be sure to remove the disc and turn off the power.
- If you do not use the DVD player for a long period, the unit may not function properly in the future. Turn on and use the DVD player occasionally.

Notes on locating

- Place the DVD player on a level surface. Do not use it on a shaky or unstable surface such as a wobbling table or inclined stand. The loaded disc may come off the proper position and cause damage to the DVD player.
- When you place this DVD player near a TV, radio, or VCR, the playback picture may become poor and the sound may be distorted. In this case, place the DVD player away from the TV, radio, or VCR.

Notes on cleaning

Use a soft, dry cloth for cleaning.

- For stubborn dirt, soak the cloth in a weak detergent solution, wring well and wipe. Use a dry cloth to wipe it dry.
  Do not use any type of solvent, such as thinner and benzine, as they may damage the surface of the DVD player.
- If you use a chemical saturated cloth to clean the unit, follow that product’s instructions.

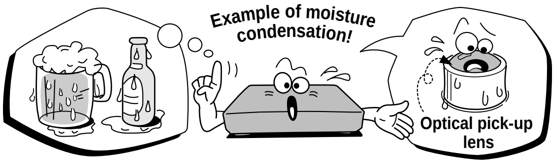
To obtain a clear picture

The DVD player is a high technology, precision device. If the optical pick-up lens and disc drive parts are dirty or worn down, the picture quality deteriorates. To obtain a clear picture, we recommend regular inspection and maintenance (cleaning or parts replacement) every 1,000 hours of use depending on the operating environment. For details, contact your nearest dealer.

Notes on moisture condensation

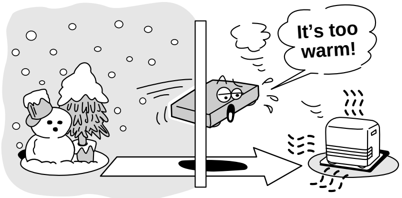
Moisture condensation damages the DVD player. Please read the following carefully.

Moisture condensation occurs, for example, when you pour a cold drink into a glass on a warm day. Drops of water form on the outside of the glass. In the same way, moisture may condense on the optical pick-up lens inside this unit, one of the most crucial internal parts of the DVD player.



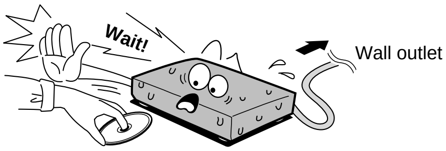
- **Moisture condensation occurs during the following cases.**

- When you bring the DVD player directly from a cold place to a warm place.
- When you use the DVD player in a room where you just turned on the heater, or a place where the cold wind from the air conditioner directly hits the unit.
- In summer, when you use the DVD player in a hot and humid place just after you move the unit from an air conditioned room.
- When you use the DVD player in a humid place.


It’s too warm!

- **Do not use the DVD player when moisture condensation may occur.**

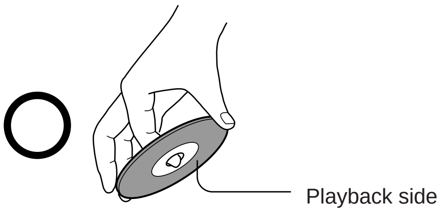
  If you use the DVD player in such a situation, it may damage discs and internal parts. Remove the disc, connect the power cord of the DVD player to the wall outlet, turn on the DVD player, and leave it for two or three hours. After two or three hours, the DVD player will have warmed up and evaporated any moisture. Keep the DVD player connected to the wall outlet and moisture condensation will seldom occur.



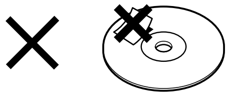
Notes on Discs

On handling discs

- Do not touch the playback side of the disc.

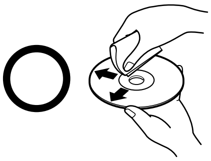


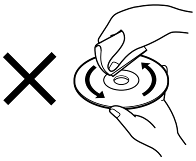
- Do not attach paper or tape to discs.



On cleaning discs

- Fingerprints and dust on the disc cause picture and sound deterioration. Wipe the disc from the center outwards with a soft cloth. Always keep the disc clean.





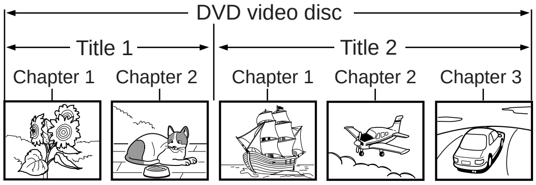
- If you cannot wipe off the dust with a soft cloth, wipe the disc lightly with a slightly moistened soft cloth and finish with a dry cloth.
- Do not use any type of solvent such as thinner, benzine, commercially available cleaners or antistatic spray for vinyl LPs. It may damage the disc.

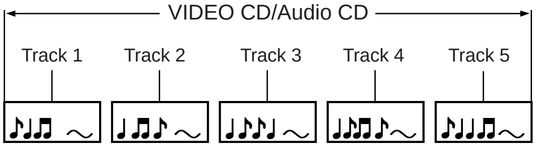
On storing discs

- Do not store discs in a place subject to direct sunlight or near heat sources.
- Do not store discs in places subject to moisture and dust such as a bathroom or near a humidifier.
- Store discs vertically in a case. Stacking or placing objects on discs outside of their case may cause warping.

Structure of disc contents

Normally, DVD video discs are divided into titles, and the titles are sub-divided into chapters. VIDEO CDs/ audio CDs are divided into tracks.





Each title, chapter or track is assigned a number, which is called “title number”, “chapter number” or “track number” respectively.
There may be discs that do not have these numbers.

Notes on copyright

It is forbidden by law to copy, broadcast, show, broadcast on cable, play in public, and rent copyrighted material without permission.

DVD video discs are copy protected, and any recordings made from these discs will be distorted.

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

Notes on Discs (continued)

About this owner's manual

This owner's manual explains the basic instructions of this DVD player. Some DVD video discs are produced in a manner that allows specific or limited operation during playback. As such, the DVD player may not respond to all operating commands. This is not a defect in the DVD player. Refer to instruction notes of discs.

"⊘" may appear on the TV screen during operation.
A "⊘" means that the operation is not permitted by the DVD player or the disc.

Notes on region numbers

The region number of this DVD player is 1. If region numbers, which stand for their playable area, are printed on your DVD video disc and you do not find 1 or ALL , disc playback will not be allowed by the player. (In this case, the DVD player will display a message on-screen.)

On VIDEO CDs

This DVD player supports VIDEO CDs equipped with the PBC (Version 2.0) function. (PBC is the abbreviation of Playback Control.) You can enjoy two playback variations depending on types of discs.

- **VIDEO CD not equipped with PBC function (Version 1.1)**
  Sound and movie can be played on this DVD player in the same way as an audio CD.
- **VIDEO CD equipped with PBC function (Version 2.0)**
  In addition to operation of a VIDEO CD not equipped with the PBC function, you can enjoy playback of interactive software with search function by using the menu displayed on the TV screen (Menu Playback).
  Some of the functions described in this owner's manual may not work with some discs.

Playable discs

This DVD player can play the following discs.

	Disc Mark	Contents	Disc Size
DVD video discs	DVD VIDEO DVD VIDEO	video (moving pictures) + Audio	12 cm
			8 cm
VIDEO CDs	COMPACT disc DIGITAL VIDEO	video (moving pictures) + Audio	12 cm
			8 cm
Audio CDs	COMPACT disc DIGITAL AUDIO	Audio	12 cm
			8 cm (CD single)

The following discs are also available.
● DVD-R discs of DVD video format
● CD-R/CD-RW discs of CD-DA format
Some of these discs may be incompatible.

- You cannot play discs other than those listed above.
- You cannot play DVD-RAM discs or non-standardized discs, etc., even if they may be labeled as above.
- This DVD player uses the NTSC color system, and cannot play DVD video discs recorded in any other color system (PAL, SECAM, etc.).

Table of Contents

Introduction

- **SAFETY PRECAUTIONS 2**
- **IMPORTANT SAFETY INSTRUCTIONS ... 4**
- **Precautions 8**
- **Notes on Discs 9**
  - Notes on region numbers 10
- **Table of Contents 11**
- **Identification of Controls 12**
  - Front panel 12
  - Rear panel 12
  - DVD display 13
  - Remote control 14
  - Loading batteries 15
  - Operating with the remote control 15

Connections

- **Connecting to a TV 18**
  - Connecting to a TV 18
  - Connecting to an audio system and TV equipped with component video inputs 19
- **Connecting to Optional Equipment 20**
  - Connecting to an amplifier equipped with a Dolby Digital decoder 21
  - Connecting to an amplifier equipped with Dolby Surround Pro Logic 21
  - Connecting to an amplifier equipped with a DTS decoder 22
  - Connecting to an amplifier equipped with an MPEG2 audio decoder 22
  - Connecting to an amplifier equipped with a digital audio input 23

Basic playback

- **Playing a Disc 26**
  - Basic playback 26
- **Variable Speed Playback 28**
  - Playing in fast reverse or fast forward directions 28
  - Playing frame by frame 28
  - Playing in slow-motion 29
  - Resuming playback from the same location ... 29
- **Locating a Desired Section 30**
  - Locating a title using the top menu 30
  - Locating a desired section by entering its corresponding number 31
  - Locating a specific chapter or track 31
- **Playing an MP3 Encoded CD 32**
  - Playing an MP3 Encoded CD 32

Advanced playback

- **Accessing a Specific Location Directly .. 34**
  - Entering the elapsed time of the desired location 34
- **Playing Repeatedly 35**
  - Repeating a title, chapter, or track 35
  - Repeating a specific segment 35
- **Playing in a Favorite Order 36**
  - Setting titles, chapters, or tracks in a favorite order 36
- **Playing in Random Order 37**
  - Playing titles, chapters, or tracks in random order 37
- **Zooming a Picture 38**
  - Zooming a picture 38
- **Selecting the Sound Enhancement (E.A.M.) 39**
  - Selecting the sound enhancement 39
- **Selecting the Camera Angle 40**
  - Changing the camera angle 40
- **Selecting Subtitles 41**
  - Selecting a subtitle language 41
- **Selecting a Language 42**
  - Selecting a playback audio setting 42

Quick control

- **Using the Virtual Remote Control - V-REMOTE - 46**
- **Selecting the Playback Function - QUICK - 47**
- **Accessing Features - NAVI - 48**

Function setup

- **Customizing the Function Settings 56**
  - Setting procedure 56
  - Setting details 58
- **Table of Languages 65**

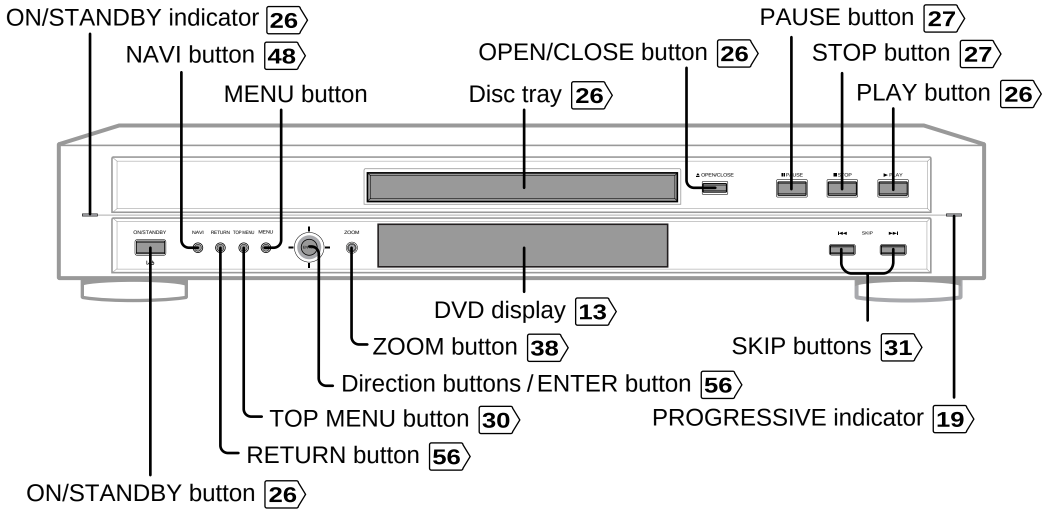
Others

- **Before Calling Service Personnel 68**
- **Specifications 69**
- **LIMITED WARRANTY DVD PLAYER 70**

Identification of Controls

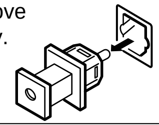
See the page in ☐ for details.

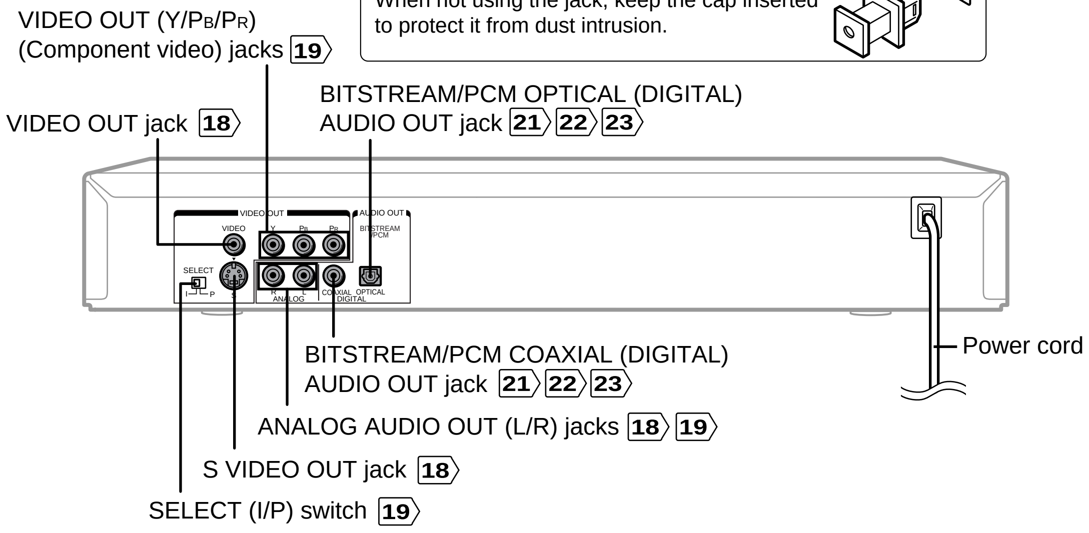
Front panel


ON/STANDBY indicator 26
NAVI button 48
MENU button
Disc tray 26
OPEN/CLOSE button 26
PAUSE button 27
STOP button 27
PLAY button 26
DVD display 13
ZOOM button 38
SKIP buttons 31
Direction buttons / ENTER button 56
TOP MENU button 30
PROGRESSIVE indicator 19
RETURN button 56
ON/STANDBY button 26

Rear panel

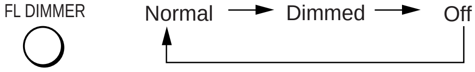
When connecting the optical digital cable, remove the cap and fit the connector into the jack firmly. When not using the jack, keep the cap inserted to protect it from dust intrusion.

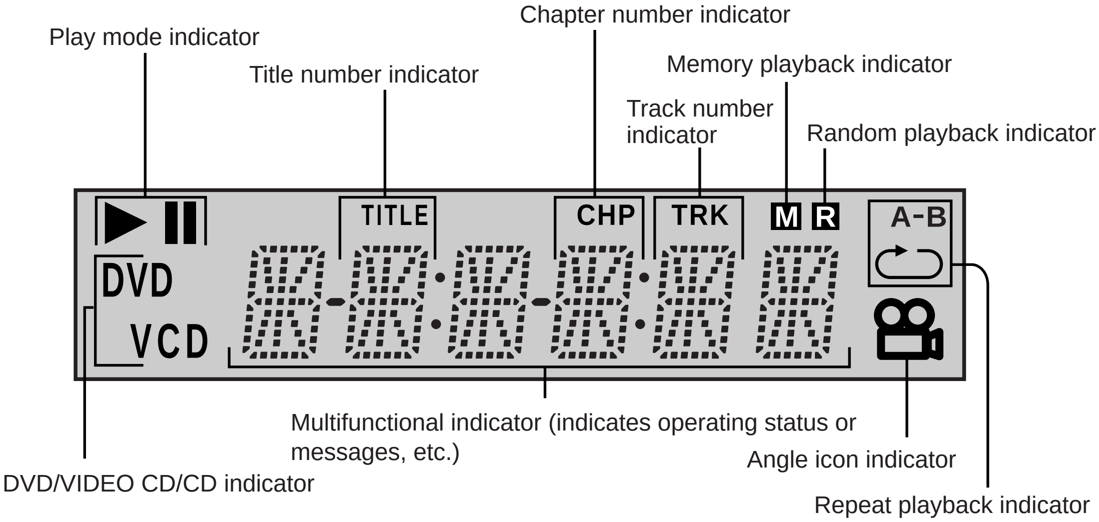



VIDEO OUT (Y/PB/PR) (Component video) jacks 19
VIDEO OUT jack 18
BITSTREAM/PCM OPTICAL (DIGITAL) AUDIO OUT jack 21 22 23
VIDEO OUT
VIDEO
Y
PB
PR
AUDIO OUT
BITSTREAM /PCM
SELECT
I P
R L
ANALOG
COAXIAL OPTICAL
DIGITAL
Power cord
BITSTREAM/PCM COAXIAL (DIGITAL) AUDIO OUT jack 21 22 23
ANALOG AUDIO OUT (L/R) jacks 18 19
S VIDEO OUT jack 18
SELECT (I/P) switch 19

DVD display

■ **Pressing of the FL DIMMER button on the remote control changes the brightness of the display.**


FL DIMMER
Normal
Dimmed
Off


Play mode indicator
Title number indicator
Chapter number indicator
Memory playback indicator
Track number indicator
Random playback indicator
TITLE
CHP
TRK
M
R
A-B
DVD
VCD
Multifunctional indicator (indicates operating status or messages, etc.)
Angle icon indicator
DVD/VIDEO CD/CD indicator
Repeat playback indicator

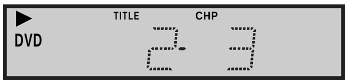
■ **When you start playback, the elapsed time indicators appear. Pressing the FL SELECT button switches them to the title/chapter/track number indicators. Some discs may not permit this operation.**

The indicators vary depending on the kinds of discs you play.

DVD video disc

- During playback:

Example


TITLE
CHP
DVD
2-3

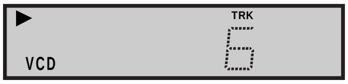
Playing chapter 3 of title 2

Some discs may not display chapter numbers or elapsed time.

VIDEO CD

- During playback:

Example



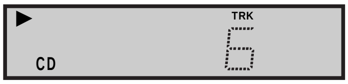
Playing track 6

Some discs may not display track numbers or elapsed time.

Audio CD

- During playback:

Example

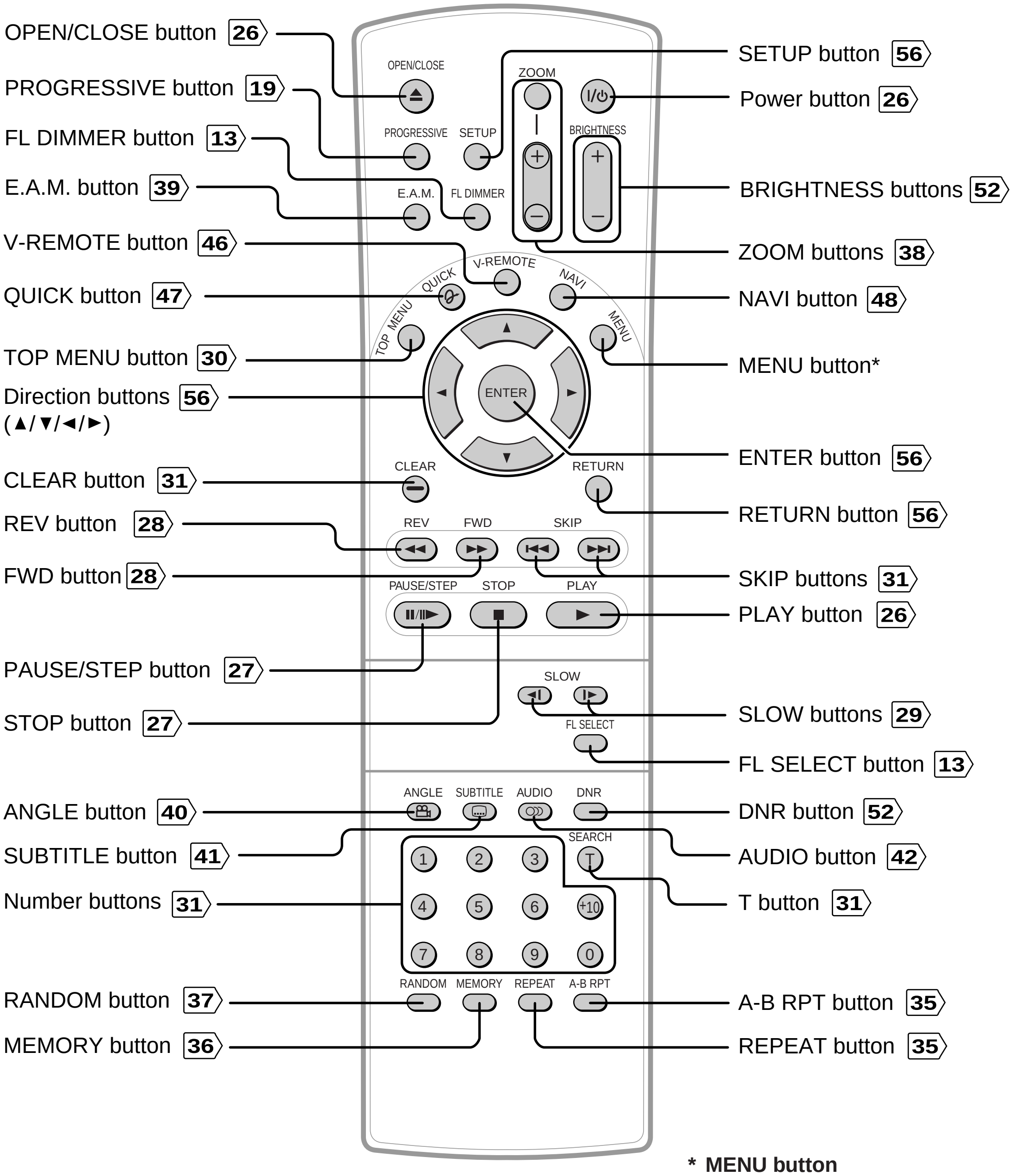


Playing track 6

Identification of Controls (continued)

The instructions in this manual describe the functions on the remote control. See the page in 〉 for details.

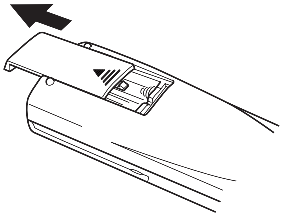
Remote control


OPEN/CLOSE button 26
PROGRESSIVE button 19
FL DIMMER button 13
E.A.M. button 39
V-REMOTE button 46
QUICK button 47
TOP MENU button 30
Direction buttons 56
(▲/▼/◄/►)
CLEAR button 31
REV button 28
FWD button 28
PAUSE/STEP button 27
STOP button 27
ANGLE button 40
SUBTITLE button 41
Number buttons 31
RANDOM button 37
MEMORY button 36
SETUP button 56
Power button 26
BRIGHTNESS buttons 52
ZOOM buttons 38
NAVI button 48
MENU button*
ENTER button 56
RETURN button 56
SKIP buttons 31
PLAY button 26
SLOW buttons 29
FL SELECT button 13
DNR button 52
AUDIO button 42
T button 31
A-B RPT button 35
REPEAT button 35
OPEN/CLOSE
ZOOM
PROGRESSIVE
SETUP
BRIGHTNESS
E.A.M.
FL DIMMER
V-REMOTE
QUICK
NAVI
TOP MENU
MENU
ENTER
CLEAR
RETURN
REV
FWD
SKIP
PAUSE/STEP
STOP
PLAY
SLOW
FL SELECT
ANGLE
SUBTITLE
AUDIO
DNR
SEARCH
1
2
3
T
4
5
6
+10
7
8
9
0
RANDOM
MEMORY
REPEAT
A-B RPT

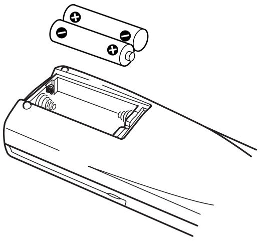
* **MENU button**
Use the MENU button to display the menu included on many DVD video discs. To operate a menu, follow the instructions in “Locating a title using the top menu.” 30

Loading batteries

1 **Open the cover.**

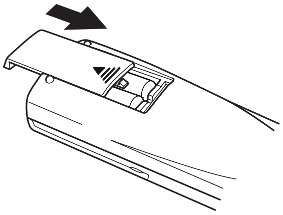


2 **Insert batteries (AAA size).**



Make sure to match the + and – on the batteries to the marks inside the battery compartment.

3 **Close the cover.**



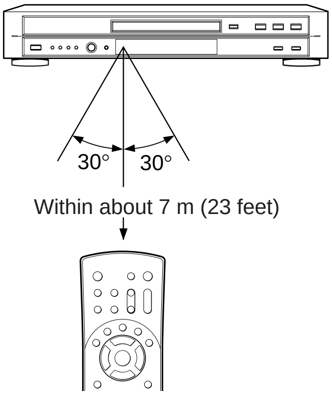
Notes on batteries

Improper use of batteries may cause battery leakage and corrosion. To operate the remote control correctly, follow the instructions below.

- Do not insert batteries into the remote control in the wrong direction.
- Do not charge, heat, open, or short-circuit the batteries. Do not throw batteries into a fire.
- Do not leave dead or exhausted batteries in the remote control.
- Do not use different types of batteries together, or mix old and new batteries.
- If you do not use the remote control for a long period of time, remove the batteries to avoid possible damage from battery corrosion.
- If the remote control does not function correctly or if the operating range becomes reduced, replace all batteries with new ones.
- If battery leakage occurs, wipe the battery liquid from the battery compartment, then insert new batteries.

Operating with the remote control

Point the remote control at the remote sensor and press the buttons.



Distance: About 7 m (23 feet) from the front of the remote sensor
Angle: About 30° in each direction of the front of the remote sensor

* Do not expose the remote sensor of the DVD player to a strong light source such as direct sunlight or other illumination. If you do so, you may not be able to operate the DVD player via the remote control.

Notes on the remote control

- Direct the remote control at the remote sensor of the DVD player.
- Do not drop or give the remote control a shock.
- Do not leave the remote control near an extremely hot or humid place.
- Do not spill water or put anything wet on the remote control.
- Do not open the remote control.

Connections

Read this chapter first to make all necessary preparations.

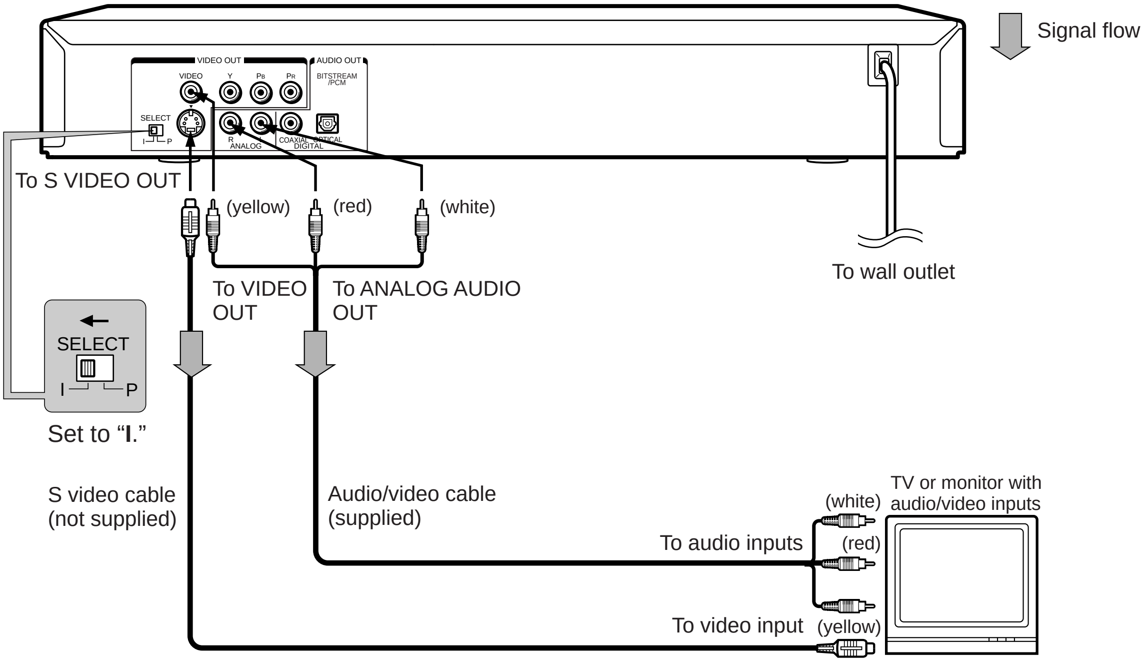
- **Connecting to a TV**
- **Connecting to an audio system and TV equipped with component video inputs**
- **Connecting to an amplifier equipped with a Dolby Digital decoder**
- **Connecting to an amplifier equipped with Dolby Surround Pro Logic**
- **Connecting to an amplifier equipped with a DTS decoder**
- **Connecting to an amplifier equipped with an MPEG2 audio decoder**
- **Connecting to an amplifier equipped with a digital audio input**

Connecting to a TV

Connect the DVD player to your TV.

For details of output sound, see 43.

Connecting to a TV


VIDEO OUT
AUDIO OUT
VIDEO
Y
PB
PR
BITSTREAM /PCM
SELECT
I P
R
L
ANALOG
COAXIAL
OPTICAL
DIGITAL
Signal flow
To S VIDEO OUT
(yellow)
(red)
(white)
To VIDEO OUT
To ANALOG AUDIO OUT
To wall outlet
SELECT
I
P
Set to "I."
S video cable (not supplied)
Audio/video cable (supplied)
TV or monitor with audio/video inputs
(white)
To audio inputs
(red)
To video input
(yellow)
To S video input

If the TV has an S video input, connect the DVD player with an S video cable. When using an S video cable, do not connect the yellow video cable.

- Make the following setting.

On-screen display	Select:	Page
"Digital Output"	"Bitstream" or "PCM"	56 59

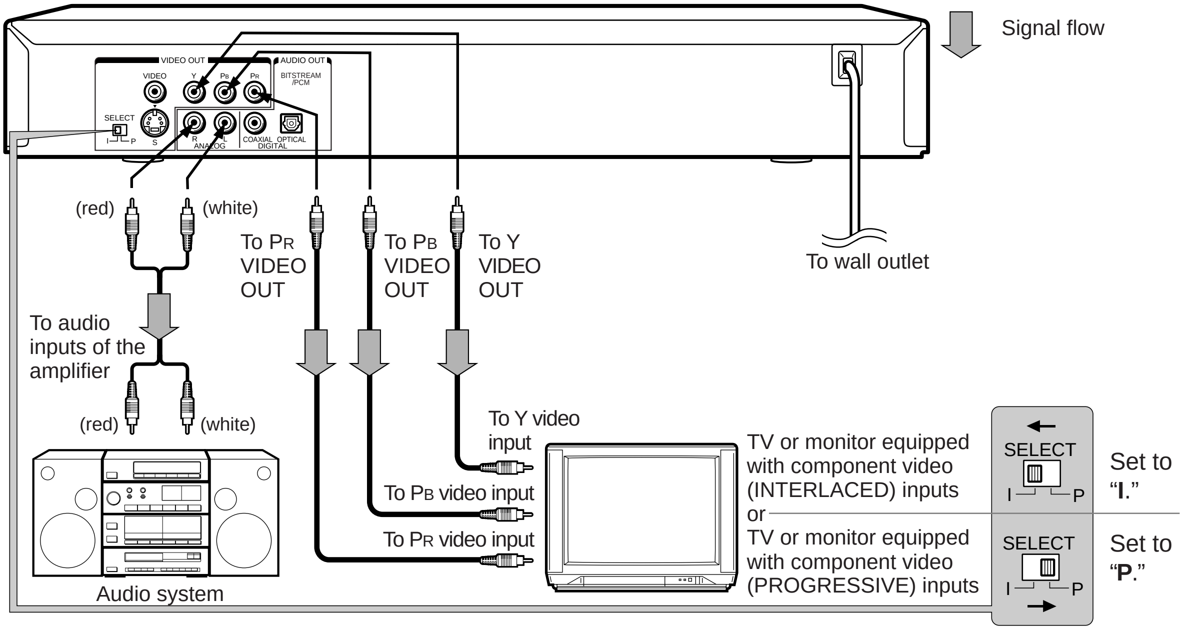
Notes

- Refer to the owner's manual of the connected TV as well.
- When you connect the DVD player to your TV, be sure to turn off the power and unplug both units from the wall outlet before making any connections.
- If your television set has one audio input, connect the left and right audio outputs of the DVD player to a Y cable adapter (not supplied) and then connect to your TV.
- Connect the DVD player directly to your TV. If you connect the DVD player to a VCR, TV/VCR combination or video selector, the playback picture may be distorted as DVD video discs are copy protected.

INTERLACED outputs/inputs (ColorStream®)
Some TVs or monitors are equipped with component video inputs. Connecting to these inputs allows you to enjoy higher quality picture playback.
Actual labels for component video inputs may vary depending on the TV manufacturer. (ex. Y, R-Y, B-Y or Y, CB, CR)
In some TVs or monitors, the color levels of the playback picture may be reduced slightly or the tint may change. In such a case, adjust the TV or monitor for optimum performance.

PROGRESSIVE outputs/inputs (ColorStream®Pro)
Some TVs or monitors are equipped with component video inputs that are capable of reproducing a progressively scanned video signal. Connecting to these inputs allows you to view the highest quality pictures with less flicker.

Connecting to an audio system and TV equipped with component video inputs


VIDEO OUT
VIDEO
Y
PB
PR
AUDIO OUT
BITSTREAM /PCM
SELECT
I
P
S
R
L
ANALOG
COAXIAL
OPTICAL
DIGITAL
Signal flow
(red)
(white)
To PR VIDEO OUT
To PB VIDEO OUT
To Y VIDEO OUT
To wall outlet
To audio inputs of the amplifier
(red)
(white)
Audio system
To Y video input
To PB video input
To PR video input
TV or monitor equipped with component video (INTERLACED) inputs
or
TV or monitor equipped with component video (PROGRESSIVE) inputs
SELECT
I
P
Set to "I."
SELECT
I
P
Set to "P."

■ Switching the output signal (interlaced/ progressive) using the remote control (only when the SELECT (I/P) switch is set to "P")

You can temporarily switch the output signal for better picture quality.
Press **PROGRESSIVE** on the remote control.
While the DVD player is outputting progressive signals, the indicator on the right side on the front panel illuminates.

* After setting this switch (I/P), be sure to power off the DVD player then turn it on to activate the setting.

- Make the following setting.

On-screen display	Select:	Page
"Digital Output"	"Bitstream" or "PCM"	56 59

Notes

- Refer to the owner's manual of the connected equipment as well.
- When you connect the DVD player to other equipment, be sure to turn off the power and unplug all of the equipment from the wall outlet before making any connections.
- If you place the DVD player near a tuner or radio, the radio broadcast sound might be distorted. In this case, place the DVD player away from the tuner and radio.
- The output sound of the DVD player has a wide dynamic range. Be sure to adjust the receiver's volume to a moderate listening level. Otherwise, the speakers may be damaged by a sudden high volume sound.
- Turn off the amplifier before you connect or disconnect the DVD player's power cord. If you leave the amplifier power on, the speakers may be damaged.
- The S VIDEO OUT jack and the VIDEO OUT jack cannot output video signals simultaneously, if you select progressive signal when the SELECT (I/P) switch is set to "P."

Connecting to Optional Equipment

You can enjoy high quality dynamic sounds by connecting the DVD player to optional audio equipment.

- For connection to your TV, see “Connecting to a TV” 18 19.
- For details of output sound, see 43.
- This section uses the following reference marks.

■ : Front speaker

▨ : Rear speaker

◫ : Sub woofer

▯ : Center speaker

⇨ : Signal flow

Notes

- DO NOT connect the BITSTREAM/PCM (DIGITAL) AUDIO OUT jack of the DVD player to the AC-3 RF input of a Dolby Digital Receiver. This input on your A/V Receiver is reserved for Laserdisc use only and is incompatible with the BITSTREAM/PCM (DIGITAL) AUDIO OUT jack of the DVD player.
- Connect the BITSTREAM/PCM (DIGITAL) AUDIO OUT jack of the DVD player to the “DIGITAL (OPTICAL)” or “DIGITAL (COAXIAL)” input of a Receiver or Processor.
- Refer to the owner’s manual of the connected equipment as well.
- When you connect the DVD player to other equipment, be sure to turn off the power and unplug all of the equipment from the wall outlet before making any connections.
- The output sound of the DVD player has a wide dynamic range. Be sure to adjust the receiver’s volume to a moderate listening level. Otherwise, the speakers may be damaged by a sudden high volume sound.
- Turn off the amplifier before you connect or disconnect the DVD player’s power cord. If you leave the amplifier power on, the speakers may be damaged.

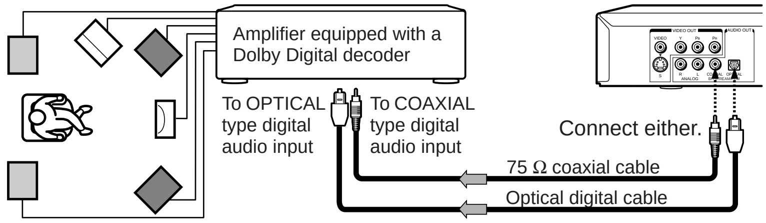
Warning

- When you are connecting (via the BITSTREAM/PCM (DIGITAL) AUDIO OUT jack) an AV decoder that does not have Dolby Digital or MPEG2 decoding function, be sure to set “Digital Output” to “PCM” from the on-screen displays 56 59. Otherwise, high volume sound may damage your hearing as well as the speakers.
- DO NOT play DTS-encoded discs when you are connecting an AV decoder that does not have DTS decoding function.
- When playing DTS-encoded discs (audio CDs), excessive noise may be output from the analog audio output jacks. To avoid possible damage to the audio system, you should take proper precautions when the analog audio output jacks of the DVD player are connected to an amplification system. To enjoy DTS Digital Surround™ playback, an external 5.1 channel DTS Digital Surround™ decoder system must be connected to the BITSTREAM/PCM (DIGITAL) AUDIO OUT jack of the DVD player.

Connecting to an amplifier equipped with a Dolby Digital decoder

Dolby Digital

Dolby Digital is the surround sound technology used in theaters showing the latest movies, and is now available to reproduce this realistic effect in the home. You can enjoy motion picture and live concert DVD video discs with this dynamic realistic sound by connecting the DVD player to a 6 channel amplifier equipped with a Dolby Digital decoder or Dolby Digital processor. If you have a Dolby Surround Pro Logic decoder, you will obtain the full benefit of Pro Logic from the same DVD movies that provide full 5.1-channel Dolby Digital soundtracks, as well as from titles with the Dolby Surround mark.


Amplifier equipped with a Dolby Digital decoder
To OPTICAL type digital audio input
To COAXIAL type digital audio input
Connect either.
75 Ω coaxial cable
Optical digital cable
VIDEO OUT
AUDIO OUT

Manufactured under license from Dolby Laboratories. "Dolby", "Pro Logic" and the double-D symbol are trademarks of Dolby Laboratories. Confidential unpublished works. Copyright 1992-1997 Dolby Laboratories. All rights reserved.

- Use DVD video discs encoded via the Dolby Digital recording system.
- Make the following setting.

On-screen display	Select:	Page
"Digital Output"	"Bitstream"	56 59
Recording system	DD D	42

Connecting to an amplifier equipped with Dolby Surround Pro Logic

Dolby Surround Pro Logic

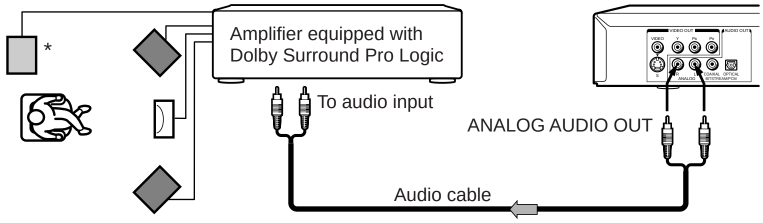
You can enjoy the dynamic realistic sound of Dolby Surround Pro Logic by connecting an amplifier and speaker system (right and left front speakers, a center speaker, and one or two rear speakers).

■ **With an amplifier equipped with Dolby Digital**

Connect the equipment the same way as described in "Connecting to an amplifier equipped with a Dolby Digital decoder." Refer to that amplifier's owner's manual and set the amplifier so you can enjoy Dolby Surround Pro Logic sound.

■ **With an amplifier not equipped with Dolby Digital**

Connect the equipment as follows.


*
Amplifier equipped with Dolby Surround Pro Logic
To audio input
ANALOG AUDIO OUT
Audio cable
VIDEO OUT
AUDIO OUT

- Make the following setting.

On-screen display	Select:	Page
"Digital Output"	"Bitstream" or "PCM"	56 59

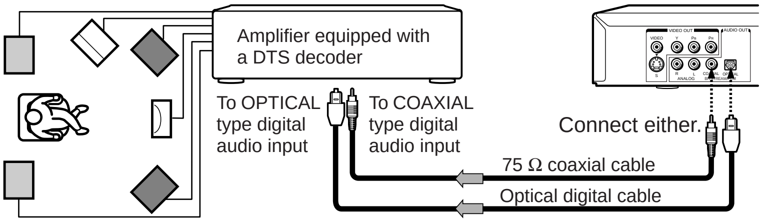
Be sure to set "Digital Output" to "Bitstream" or "PCM" when you enjoy sounds of Dolby Surround Pro Logic using this connection.

* Connect one or two rear speakers.
The output sound from the rear speakers will be monaural even if you connect two rear speakers.

Connecting to Optional Equipment (Continued)

Connecting to an amplifier equipped with a DTS decoder

Digital Theater Systems (DTS)
DTS is a high quality surround technology used in theaters and now available for home use, on DVD video discs or audio CDs.
If you have a DTS decoder or processor, you can obtain the full benefit of 5.1 channel DTS encoded sound tracks on DVD video discs or audio CDs.


Amplifier equipped with a DTS decoder
To OPTICAL type digital audio input
To COAXIAL type digital audio input
Connect either.
75 Ω coaxial cable
Optical digital cable
VIDEO OUT
AUDIO OUT
ANALOG

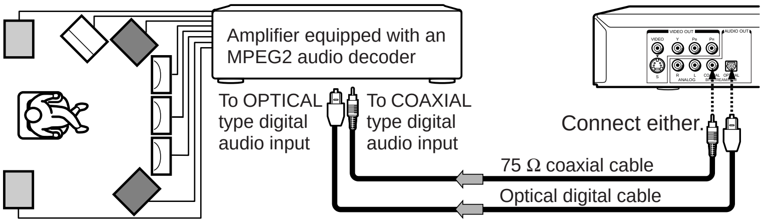
"DTS" and "DTS Digital Out" are trademarks of Digital Theater Systems, Inc.

- Use DVD video discs or audio CDs encoded via the DTS recording system.
- Make the following setting.

On-screen display	Select:	Page
"Digital Output"	"Bitstream" or "PCM"	56 59
Recording system	DTS	42

Connecting to an amplifier equipped with an MPEG2 audio decoder

MPEG2 sound
You can enjoy motion picture and live concert DVD video discs with dynamic realistic sound by connecting an amplifier equipped with an MPEG2 audio decoder or MPEG2 audio processor.

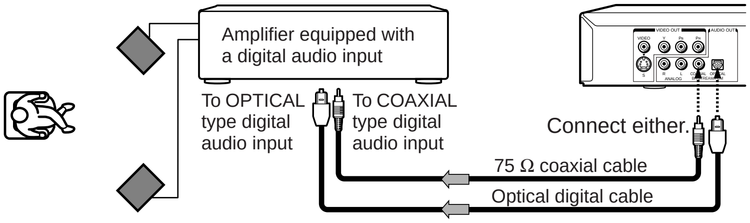

Amplifier equipped with an MPEG2 audio decoder
To OPTICAL type digital audio input
To COAXIAL type digital audio input
Connect either.
75 Ω coaxial cable
Optical digital cable
VIDEO OUT
AUDIO OUT
ANALOG

- Use DVD video discs encoded via the MPEG2 recording system.
- Make the following setting.

On-screen display	Select:	Page
"Digital Output"	"Bitstream"	56 59
Recording system	MPEG2	42

Connecting to an amplifier equipped with a digital audio input

2 channel digital stereo
You can enjoy the dynamic sound of 2 channel digital stereo by connecting an amplifier equipped with a digital audio input and speaker system (right and left front speakers).


Amplifier equipped with a digital audio input
To OPTICAL type digital audio input
To COAXIAL type digital audio input
Connect either.
75 Ω coaxial cable
Optical digital cable
VIDEO OUT
AUDIO OUT

- Make the following setting.

On-screen display	Select:	Page
“Digital Output”	“PCM”	56 59

Basic playback

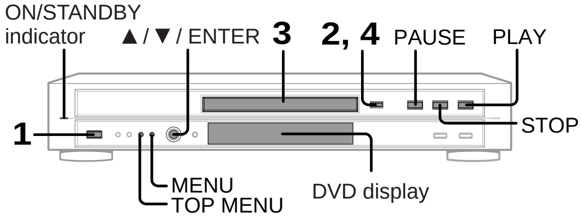
Begin your operation.

- Playing a Disc
- Variable Speed Playback
- Locating a Desired Section
- Playing an MP3 Encoded CD

Playing a Disc

This section shows you the basics on how to play a disc.

CAUTION
Keep your fingers well clear of the disc tray as it is closing. Neglecting to do so may cause serious personal injury.



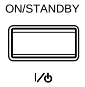
DVD-V VCD CD

Basic playback

Preparations

- When you want to view a disc, turn on the TV and select the video input connected to the DVD player.
- When you want to enjoy the sound of discs from the audio system, turn on the audio system and select the input connected to the DVD player.

1 Press the power button (ON/STANDBY).



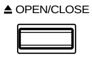
The DVD player turns on and the ON/STANDBY indicator on the player illuminates.

When the DVD player is turned on for the first time, an on-screen display will appear to provide initial settings. Press the ▲ / ▼ buttons to select an item, and press the ENTER button. See the pages in , and make a selection using the ▲ / ▼ buttons, then press the ENTER button.

On-Screen Language 60
TV Shape 58

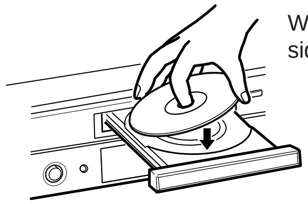
After making all the settings, select “ ” and press the ENTER button.

2 Press OPEN/CLOSE.



The disc tray opens.

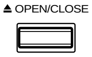
3 Place a disc on the disc tray.



With the playback side down.

- There are two different disc sizes. Place the disc in the correct guide on the disc tray. If the disc is out of the guide, it may damage the disc and cause the DVD player to malfunction.
- Do not place a disc which is unplayable in this DVD player.

4 Press OPEN/CLOSE to close the disc tray.



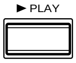
Playback starts.

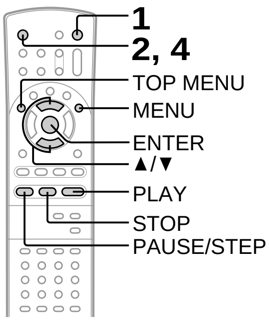
If you insert a DVD video disc that contains a top menu, a menu may appear. See “Locating a title using the top menu.” 30
You may need to press the TOP MENU or MENU button to display disc menu (depending on the actual DVD video disc.)

Note
If the disc tray contains a disc you have already played, playback will begin from the location where you last stopped playback. 29

■ To start playback in the stop mode

Press **PLAY**.





To obtain a higher quality picture

Occasionally, some picture noise not usually visible during a normal broadcast may appear on the TV screen while playing a DVD video disc because the high resolution pictures on these discs include a lot of information. While the amount of noise depends on the TV you use with this DVD player, you should generally reduce the sharpness adjustment on your TV when viewing DVD video discs.

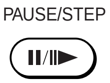
About DVD-V VCD CD

The DVD-V VCD CD icons on the heading bar show the playable discs for the function described under that heading.

DVD-V : DVD video discs.
VCD : VIDEO CDs.
CD : Audio CDs.

To pause playback (still mode)

Press **PAUSE/STEP** during playback.

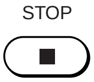


To resume normal playback, press the PLAY button.

- Sound is muted during still mode.

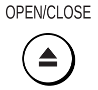
To stop playback

Press **STOP**.

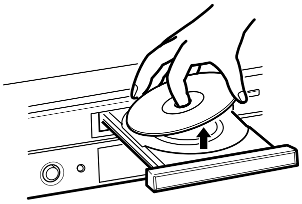


To remove the disc

Press **OPEN/CLOSE**.



Remove the disc after the disc tray opens completely.



Be sure to press the OPEN/CLOSE button to close the disc tray after you remove the disc.

About the screen saver

If you pause a picture of a DVD video disc and leave it still for a long while, the screen saver of the DVD player automatically appears (when “Screen Saver” is set to “On” 62). To turn off the screen saver, press the PLAY button.

Automatic Power Off function

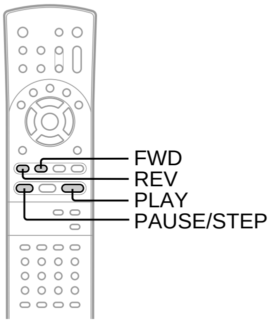
If the DVD player is stopped, or the screen saver is engaged for approximately 20 minutes, the DVD player will automatically turn itself off.

Notes

- Do not move the DVD player during playback. Doing so may damage the disc.
- Use the OPEN/CLOSE button to open and close the disc tray. Do not push the disc tray while it is moving. Doing so may cause the DVD player to malfunction.
- Do not push up on the disc tray or put any objects other than discs on the disc tray. Doing so may cause the DVD player to malfunction.
- In many instances, a menu screen will appear after playback of a movie is completed. Prolonged display of an on-screen menu may damage your television set, permanently etching that image onto its screen. To avoid this, be sure to press the STOP button twice on your remote control once the movie is completed.

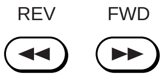
Variable Speed Playback

You can play discs at various speeds, and resume playback from the location where you stopped playback.



DVD-V VCD CD Playing in fast reverse or fast forward directions

Press REV or FWD during playback.



REV : Fast reverse playback
FWD: Fast forward playback

Each time you press the REV or FWD button, the playback speed changes.

■ **To resume normal playback**

Press **PLAY**.

Notes

- The DVD player mutes sound and omits subtitles during reverse and forward scan of DVD video discs.
- The playback speed may differ depending on the disc.

DVD-V VCD CD Playing frame by frame

Press PAUSE/STEP during still playback.

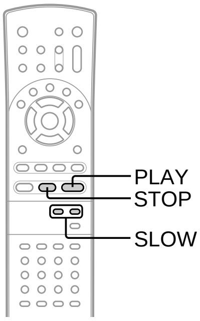
Each time you press the PAUSE/STEP button, the picture advances one frame.

■ **To resume normal playback**

Press **PLAY**.

Note

The sound is muted during frame by frame playback.



DVD-V VCD CD Playing in slow-motion

Press SLOW during playback.

Each time you press the SLOW I▶ button, the slow-motion speed changes.

If you press the SLOW ◀I button during playback, you can view the picture in reverse slow-motion. (Only when using a DVD video disc.)

Each time you press the SLOW ◀I button, the slow-motion speed changes.

■ To resume normal playback

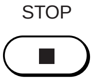
Press **PLAY**.

Notes

- The sound is muted during slow-motion playback.
- The playback speed may differ depending on the disc.

DVD-V VCD CD Resuming playback from the same location

1 Press STOP at the location where you want to interrupt playback.



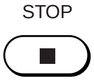
The DVD player memorizes the location where playback is stopped.

2 Press PLAY.

The DVD player resumes playback from the location where you stopped playback.

■ To start playback from the beginning regardless of the location where you stopped playback

1 Press **STOP** twice.



The DVD player erases the previous location from its memory.

2 Press **PLAY**.

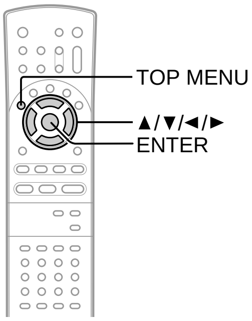
DVD-V	Playback starts from the beginning of the current title.
VCD CD	Playback starts from the beginning of the disc.

- If you want to return to the beginning of a DVD video disc, open and close the disc tray once with the OPEN/CLOSE button before pressing the PLAY button.

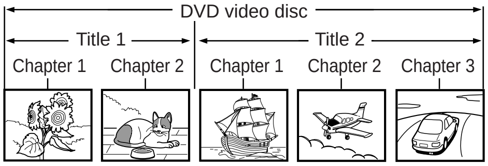
Notes

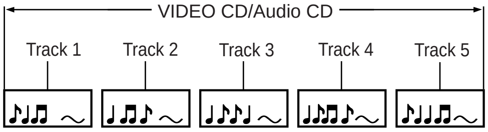
- Resuming cannot function when:
  - –you change the parental lock setting 62 or select a disc menu language 60.
  - –you play a PBC-featured VIDEO CD while “PBC” 64 is set to “On.”
  - –you open the disc tray.
- There may be a difference in the location where playback resumes depending on the disc.
- Settings you changed using the on-screen displays while the DVD player keeps a location in the memory may function only after the memory is cleared.

Locating a Desired Section


TOP MENU
▲/▼/◄/►
ENTER

Normally, DVD video discs are divided into titles, and the titles are sub-divided into chapters. VIDEO CDs and audio CDs are divided into tracks. You can quickly locate any specific title, chapter, or track.


DVD video disc
Title 1
Title 2
Chapter 1
Chapter 2
Chapter 1
Chapter 2
Chapter 3


VIDEO CD/Audio CD
Track 1
Track 2
Track 3
Track 4
Track 5

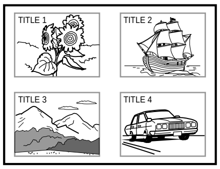
DVD-V VCD CD

Locating a title using the top menu

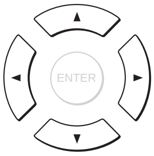
1 Press TOP MENU.

The top menu appears on the TV screen.

e.g.


TITLE 1
TITLE 2
TITLE 3
TITLE 4

2 Press ▲ / ▼ / ◄ / ► to select the title you want.



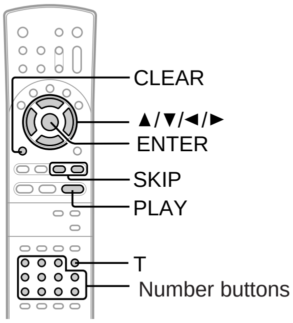
If the titles in the top menu are assigned a number, you can directly locate a specific title by pressing its designated number with the number buttons.

3 Press ENTER.

Playback starts from chapter 1 of the selected title.

Notes

- The instructions above describe basic procedures which may vary depending on the contents of the DVD video disc. If different instructions appear on the TV screen, follow those instructions.
- If you display the top menu during playback and press the TOP MENU button again without selecting any title, the DVD player may resume playback from the point where you first pressed the TOP MENU button (depending on the actual DVD video disc.)
- This method of locating a title is available only on a disc that contains a top menu.
- Instruction notes of discs may refer to the button that displays the top menu as TITLE button.

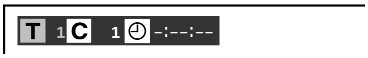


DVD-V VCD CD Locating a desired section by entering its corresponding number

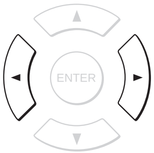
1 **Press T.**

If you are using a VIDEO CD/audio CD, skip steps 1 and 2. Then at step 3, enter the number for the track you want using the number buttons.

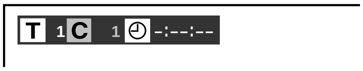
e.g.



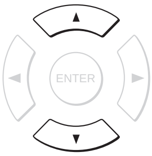
2 **Press ◀ / ▶ to select a section you want to locate.**



e.g. When you want to locate a chapter.



3 **Press ▲ / ▼ to enter a number of the section.**



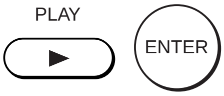
Also the number buttons are available.

e.g. To enter 25

②→⑤ or (+10)→(+10)→⑤

4 **Repeat steps 2 and 3 if necessary.**

5 **Press PLAY or ENTER.**



Playback starts from the selected location.

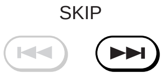
Notes

- Pressing the CLEAR button resets the numbers. To clear the display, press the T button several times.
- This method of locating a title is available only on a disc that contains title numbers.

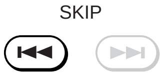
DVD-V VCD CD Locating a specific chapter or track

Press SKIP ⏮ or ⏭ repeatedly to display the chapter or track number you want.

Playback starts from the selected chapter or track.



To locate succeeding chapters or tracks.



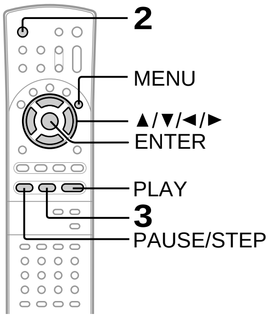
Playback starts from the beginning of the current chapter or track. When you press twice, playback starts from the beginning of the preceding chapter or track.

Notes

- Some titles may not display chapter numbers.
- When you set “Title Stop” to “Off” 64, you can access chapters in another title. If you go back to the preceding title by pressing the SKIP ⏮ button, the DVD player locates the first chapter of the title. When “Title Stop” is set to “On,” you can access chapters only within the current title.
- If you press and hold the SKIP ⏮ or ⏭ button on the front panel during playback, the DVD player performs fast reverse or fast forward playback. You can vary the speed by pressing the button further.
  To locate chapters or tracks during fast reverse or fast forward playback, first press the PLAY button to resume normal playback, then use the SKIP ⏮ or ⏭ button.

Playing an MP3 Encoded CD

You can play MP3 files on this DVD player.



Playing an MP3 encoded CD

MP3 disc compatibility with this player is limited as follows:

- Playable discs: CD-ROM, CD-R (650MB / 74 min. only) CD-RW is not recommendable.
- Sampling Frequency: 44.1 kHz only
- Bit rate 32 kbps-320 kbps
- CD physical format: Mode 1, Mode 2 XA Form 1
- File system: ISO9660 Level 1
- File names are limited to eight characters or less and must incorporate “MP3” extension. e.g.“********.MP3”
- File names cannot contain special characters such as “?!><+*}{`[@]:;\ /.,” etc.
- Total number of files on the disc should not exceed 254.

Preparations

- When you playback an MP3 encoded CD, set “Priority Contents” to “ MP3 > JPG ”. 64

1 **Place a CD that contains MP3 files on the disc tray.**

2 **Press OPEN/CLOSE to load the disc.**

OPEN/CLOSE

Playback starts.

To start playback from stop mode, press the PLAY button.

3 **To stop playback, press STOP.**

STOP

To pause playback

Press **PAUSE/STEP** during playback.

PAUSE/STEP

To resume normal playback, press the PLAY button.

Selecting a track (file) in the disc

1 If a track list is not displayed, press the MENU button to show it.
The current track being played is highlighted in red.

2 Press the ▲ / ▼ / ◄ / ► buttons to select a track you want to play.
The selected track is highlighted in green.

3 Press the ENTER button to begin playback of the selected track.

Notes

- Some discs may not permit this operation.
- If you stop playback by pressing the STOP button, and then press the PLAY button, playback will start from the beginning of the track.
- The SKIP 31, REPEAT 35 and RANDOM 37 functions are also available.

This DVD player requires discs/recordings to meet certain technical standards in order to achieve optimal playback quality. Pre-recorded DVDs are automatically set to these standards. There are many different types of recordable disc formats (including CD-R containing MP3 files). Given the fact that technology in this area is still maturing, Toshiba cannot guarantee that all genre of recordable discs will produce optimal playback quality. The technical criteria set out in this owner’s manual are meant as a guide only.

Customers should also note that permission is required in order to download MP3 files and music from the internet. Toshiba has no right to grant such permission. Permission should always be sought from the copyright owner.

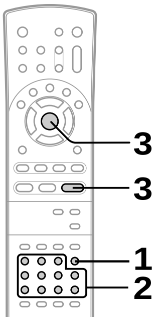
Advanced playback

Customizing the performance of your DVD player.

- **Accessing a Specific Location Directly**
- **Playing Repeatedly**
- **Playing in a Favorite Order**
- **Playing in Random Order**
- **Zooming a Picture**
- **Selecting the Sound Enhancement (E.A.M.)**
- **Selecting the Camera Angle**
- **Selecting Subtitles**
- **Selecting a Language**

Accessing a Specific Location Directly

You can access a specific location by entering its corresponding elapsed time (hours, minutes, seconds).



DVD-V VCD CD Entering the elapsed time of the desired location

1 Press T several times.

SEARCH
T

You may have to press further depending on the disc. Press the button repeatedly until the clock icon is highlighted.

e.g.

T 1 C 1 ◴ -:--:--

2 Press the number buttons to enter the elapsed time.

e.g.

1 → 2 → 5 → 3 → 0

T 1 C 1 ◴ 1:25:30

3 Press PLAY or ENTER.

PLAY ►

ENTER

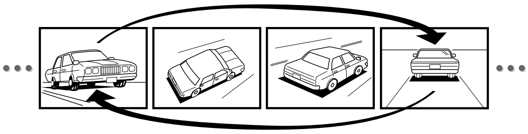
Playback starts from the desired location.

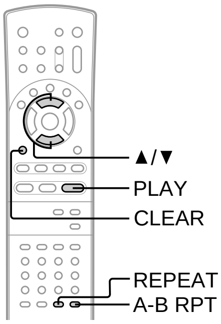
Notes

- Some discs may not respond to this process.
- Some scenes may not be located precisely as you specified.
- This method for accessing specific locations is available only within the current title of the DVD video disc or within the current track of the VIDEO CD/audio CD.

Playing Repeatedly

You can play a specific title, chapter, track, or segment repeatedly.





DVD-V VCD CD Repeating a title, chapter, or track

1 Press REPEAT.

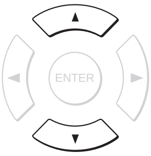
REPEAT

The repeat mode menu appears.

2 Press REPEAT or ▲ / ▼ repeatedly to select the repeat playback mode.

REPEAT

The mode changes as follows (when using the REPEAT button):



DVD-V Chapter Repeat
↓
DVD-V Title Repeat
VCD CD Track Repeat
↓
DVD-V VCD CD All Repeat
↓
Repeat off

Chapter Repeat:	Repeats the current chapter.
Track Repeat:	Repeats the current track.
Title Repeat	Repeats the current title.
All Repeat:	Repeats the entire disc.
Repeat Off:	Resumes normal playback.

If you select the repeat mode during playback, the DVD player automatically starts repeat playback after finishing the current title, chapter, or track.

3 Press PLAY.

PLAY

The DVD player starts repeat playback.
Press the PLAY button within about 5 seconds after you press the REPEAT button.

■ To resume normal playback

Press **CLEAR**.

CLEAR

Note

Some discs may not permit repeat operation.

DVD-V VCD CD Repeating a specific segment

1 Press A-B RPT at the beginning of the segment (point A) you want to play repeatedly.

A-B RPT

A–

2 Press A-B RPT again at the end of the segment (point B).

A-B RPT

The DVD player automatically returns to point A and starts repeat playback of the selected segment (A-B).

A–B Repeat

■ To resume normal playback

Press **CLEAR**.

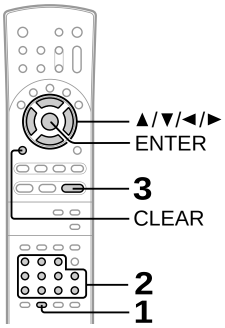
CLEAR

Notes

- Some discs may not permit A-B repeat operation.
- You cannot set the A-B repeat function for a segment that includes multiple camera angles 40.
- You can specify a segment only within the current title.
- There may be a slight difference between point A and the location where playback actually resumes depending on the disc.

Playing in a Favorite Order

You can combine your favorite titles, chapters, or tracks and play them in the order you determine. You can program up to 30 selections into the memory. (Memory playback)

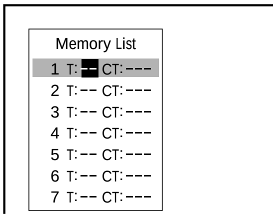


DVD-V VCD CD Setting titles, chapters, or tracks in a favorite order

1 **Insert a disc and press MEMORY during stop.**

MEMORY

The following display appears.



Memory List

1 T:-- CT:---
2 T:-- CT:---
3 T:-- CT:---
4 T:-- CT:---
5 T:-- CT:---
6 T:-- CT:---
7 T:-- CT:---

T: Title number
CT: Chapter number or track number

2 **Select the items in the order you want by pressing the number buttons, then ENTER for each item.**

Each time you press the ◄ / ► buttons, the spaces of “T” and “CT” are highlighted in turn. Highlight where you want to enter, then press the corresponding number buttons.

To select another chapter in the same title, you do not need to select the title number.

To select tracks from a VIDEO CD/audio CD in order, press the **number buttons** for the track, then press the **ENTER** button for each selection you want.

3 **Press PLAY while the display appears on the TV screen.**

PLAY

The DVD player starts memory playback.

■ To change the programmed selections

1 While the display appears on the TV screen, press the ▲ / ▼ / ◄ / ► buttons to highlight the item you want to change.
2 Change the selection following the instructions in step **2**.

■ To cancel the programmed selections

1 While the display appears on the TV screen, press the ▲ / ▼ buttons to highlight the item you want to cancel.
2 Press **CLEAR**.

■ To resume normal playback from memory playback

Press **CLEAR**.

CLEAR

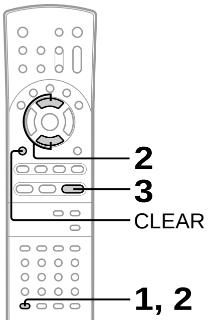
The memory playback indicator disappears.

Notes

- Some discs may not permit memory playback operation.
- If you press the REPEAT button during memory playback, the DVD player repeats the current memory playback.
- If you press the MEMORY or RETURN button while the display appears on the TV screen, the display disappears.
- The programmed selections will be cleared when:
  - – you turn off the DVD player.
  - – you open the disc tray.

Playing in Random Order

You can play titles, chapters, or tracks in random order.
(Random playback)

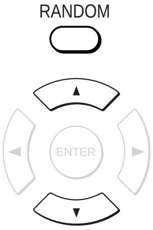


DVD-V VCD CD Playing titles, chapters, or tracks in random order

1 Press RANDOM.

The random mode menu appears.

2 Press RANDOM or ▲ / ▼ repeatedly to select the random playback mode.



The mode changes as follows (when using the RANDOM button):

DVD-V	Chapter Random	Plays the chapters within the current title in random order.
DVD-V	Title Random	Plays titles in random order.
VCD	Track Random	Plays tracks in random order.
CD	Track Random	Plays tracks in random order.
	Random Off	Resumes normal playback.

If you select the random mode during playback, the DVD player automatically starts random playback after finishing the current title, chapter, or track.

3 Press PLAY.

The DVD player starts random playback.
Press the PLAY button within about 5 seconds after you press the RANDOM button.

■ To resume normal playback

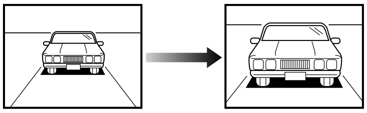
Press **CLEAR**.

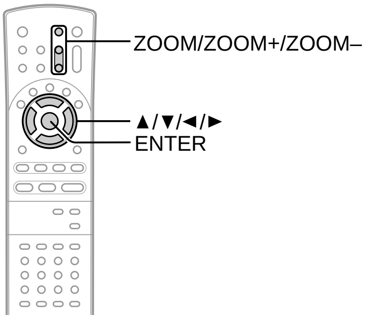
Notes

- Some discs may not permit random playback operation.
- You cannot use the random playback function in conjunction with the memory playback function.

Zooming a Picture

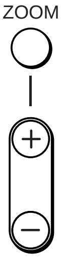
You can magnify areas within a picture.





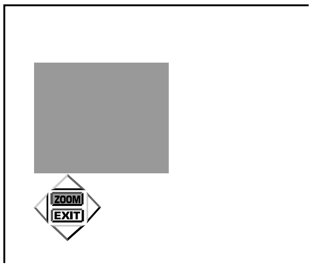
DVD-V VCD CD Zooming a picture

1 During normal, slow or still playback, press ZOOM, ZOOM+ or ZOOM–.



The DVD player enters the zoom playback mode, and a monitor scope and an icon appear.

e.g.

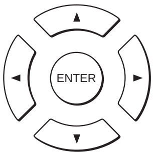


2 Select the zoom point and magnification level.

Magnification level

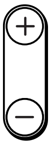
- To use the fixed levels:
  You can select from the following.
  – Magnification
  – Image reduction
  – Normal playback

Press the **ZOOM** button repeatedly.



Alternatively press the ▲ / ▼ / ◄ / ► buttons to select “ZOOM” on the icon, and press the **ENTER** button repeatedly.

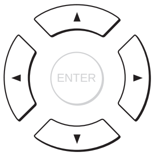
- To zoom in (or to zoom out):



Press repeatedly or press and hold the **ZOOM+** (or **ZOOM–**) button.

Zoom point

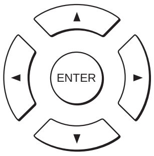
To shift:



Press the ▲ / ▼ / ◄ / ► buttons.

■ **To hide the monitor scope and the icon during zoom playback**

Press ▲ / ▼ / ◄ / ► to select “EXIT,” and press **ENTER**.



■ **To resume normal playback**

Press **ZOOM** repeatedly until the monitor scope and the icon disappear.

Alternatively press ▲ / ▼ / ◄ / ► to select “ZOOM” on the icon, and press **ENTER** repeatedly until the monitor scope and the icon disappear.

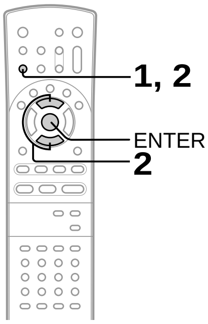
Notes

- Some discs may not respond to zoom feature.
- During some scenes, the buttons may not work as described.
- Zooming does not work on subtitles or menus included on DVD video discs.
- While the icon is displayed, the ▲ / ▼ / ◄ / ►/ENTER buttons cannot work on menus included on DVD video discs. If you want to view the menus, cancel the zoom playback.
- The magnification level varies depending on the picture size you select. 58

Selecting the Sound Enhancement (E.A.M.*)

You can easily switch a preferred audio enhancement.

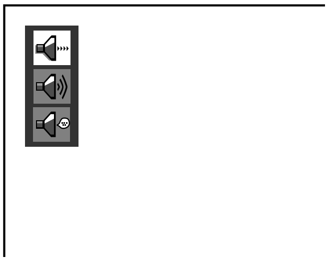
*E.A.M.: Enhanced Audio Mode



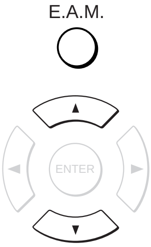
DVD-V VCD CD Selecting the sound enhancement

1 Press E.A.M.

The sound enhancement menu appears.



2 Press E.A.M or ▲ / ▼ repeatedly to select the sound enhancement.



Normal:

Normal sound.

3D:

To obtain expansive virtual surround sound effects from just two speakers.

Dialogue:

To control critical center channel information to make dialogue more intelligible (only when playing a DVD video disc recorded on the Dolby Digital recording system).

- To use this enhancement on sounds output from the BITSTREAM/PCM (DIGITAL) AUDIO OUT jack, be sure to set “Digital Output” to “PCM”. 59

■ To exit the audio enhancement selection

Press **ENTER**.

Alternatively leave the DVD player unattended for about 5 seconds after having made a selection.

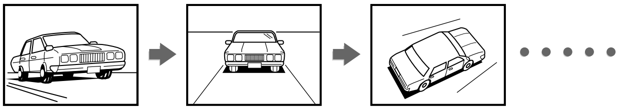
Notes

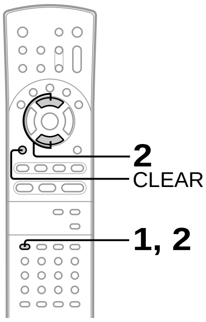
- Actual effects to sounds may vary depending on the speaker systems. Make selection according to your preference.
- Actual effects to sounds may vary depending on the disc.
- When the DVD player is connected to an amplifier equipped with Dolby Surround Pro Logic, select “Normal”. Otherwise, Dolby Surround Pro Logic may function differently than usual.
- Selecting “Dialogue” disables “Dynamic Range Control” function 59.

Spatializer® 3-Dimensional Sound Processing provided by Desper Products. Inc.
Certain audio features of this product manufactured under a license from Desper Products, Inc., Spatializer® and the circle-in-square device are trademarks owned by Desper Products, Inc.

Selecting the Camera Angle

If the scene was recorded from multiple angles, you can easily change the camera angle of the scene you are watching.





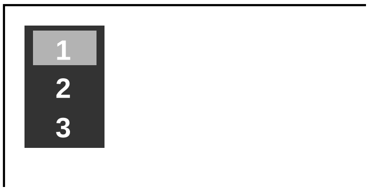
DVD-V VCD CD Changing the camera angle

1 Press ANGLE while playing a scene recorded with multiple angles.

ANGLE

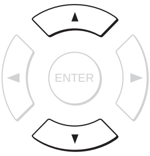
While playing a scene recorded with multiple angles, the angle icon (🎥) flashes in the DVD display.
Press the ANGLE button while the angle icon is flashing.

e.g.



2 Press ANGLE or ▲ / ▼ while the angle number is displayed on the TV screen.

ANGLE



Each time you press the ANGLE button or the ▲ / ▼ buttons, the camera angle changes.

You can change the camera angle directly by pressing the number buttons corresponding to its angle number instead of using the ▲ / ▼ buttons.

■ **To turn off the angle number display**

Press **CLEAR**.

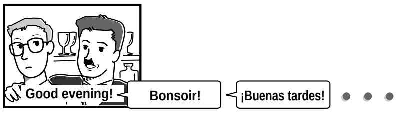
CLEAR

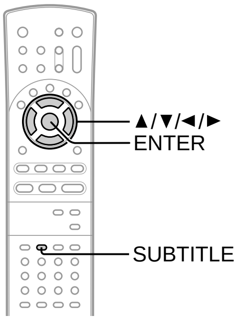
Notes

- You can change the camera angle during still playback. The camera angle changes to the new setting when you resume normal playback.
- If you pause a picture immediately after changing a camera angle, the resumed playback picture may not display the new camera angle.

Selecting Subtitles

You can display subtitles on the TV screen and select a subtitle language from those included on the DVD video disc.


Good evening!
Bonsoir!
¡Buenas tardes!
• • •



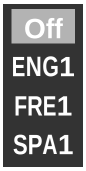
DVD-V VCD CD Selecting a subtitle language

1 **Press SUBTITLE during playback.**

SUBTITLE

The current subtitle setting is displayed.

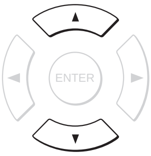
e.g.


Off
ENG1
FRE1
SPA1

The abbreviation of the language appears instead of the language name. Refer to the list of languages and their abbreviations. 65

2 **Press SUBTITLE or ▲ / ▼ while the subtitle setting is displayed on the TV screen.**

SUBTITLE



Each time you press the SUBTITLE button or the ▲ / ▼ buttons, the subtitle languages included on the DVD video disc change.

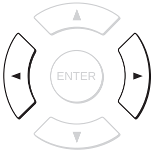
To turn off the subtitle setting display, press the ENTER button.

■ To turn subtitles on or off

1 Press **SUBTITLE** during playback.

SUBTITLE

2 Press ◄ / ► while the subtitle setting is displayed on the TV screen, to select “On” or “Off.”



Notes

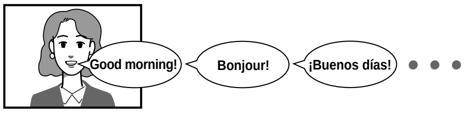
- Some DVD video discs are set to display subtitles automatically, and you cannot turn them off even if you set the subtitle function to off.
- During some scenes, the subtitles may not appear immediately after you select “On.”
- Some DVD video discs will allow you to make subtitle selections and turn subtitles on or off only via the disc menu.

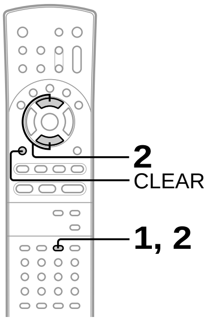
Notes

- When you turn on the DVD player or replace a disc, the player returns to the initial default setting 61.
  When you select a subtitle language which is not included on the disc, the DVD player plays a prior language programmed on the disc.
- During some scenes, the subtitles may not appear immediately after you change the subtitle language.

Selecting a Language

You can select a preferred language and sound recording system from those included on the disc.


Good morning!
Bonjour!
¡Buenos días!
• • •



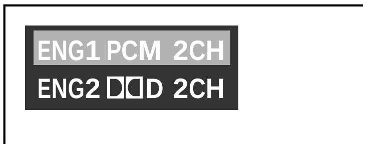
DVD-V VCD CD Selecting a playback audio setting

1 **Press AUDIO during playback.**

AUDIO

The current audio setting is displayed.

e.g.

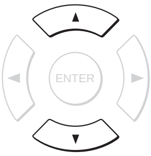


ENG1 PCM 2CH
ENG2 DD 2CH

The abbreviation of the language appears instead of the language name. Refer to the list of languages and their abbreviations. 65

2 **Press AUDIO or ▲ / ▼ while the audio setting is displayed on the TV screen.**

AUDIO



Each time you press the AUDIO button or the ▲ / ▼ buttons, the audio settings included on the disc change.

To turn off the audio setting display, press the CLEAR button.

■ Selecting sound channels of VIDEO CDs

You can switch left and right channels by pressing the **AUDIO** button repeatedly during playback.

AUDIO

Notes

- When you turn on the DVD player or replace a disc, player returns to the initial default setting 61.
  If you select a sound track which is not included on the disc, the DVD player plays a prior sound track programmed on the disc.
- Some discs allow you to change audio selections only via the disc menu. If this is the case, press the MENU button and choose the appropriate language from the selections on the disc menu.

Output sound conversion table

Output / Input		BITSTREAM/PCM jack		ANALOG AUDIO OUT Jacks
		"Digital Output" 56 59		
		"Bitstream"	"PCM"	
DVD video disc	Dolby Digital	Bitstream	PCM ▨	○ ▨
	Linear PCM	PCM ▨	PCM ▨	○ ▨
	DTS	Bitstream	Bitstream	—
	MPEG1, MPEG2	Bitstream	PCM ▨	○ ▨
VIDEO CD	MPEG1	PCM ▨	PCM ▨	○ ▨
Audio CD	Linear PCM 44.1 kHz/16 bit	PCM	PCM	○ ▨
	DTS	Bitstream	Bitstream	Noise
MP3		PCM	PCM	○

▨ : 3D sound enhancement can function.

- Signals of 96kHz from the BITSTREAM/PCM jack are depressed to 48 kHz by down sampling process when:
  – "3D" is selected. 39
  – "PCM Down Sampling" is set to "On." 59
  – a copyright protected disc is played.
- Quantization bit of signals of 20 bit or higher which is output from the BITSTREAM/PCM jack is 16 bit if they are in a copyright protected disc.

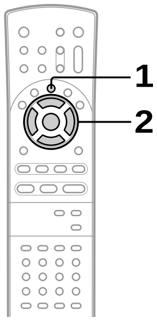
Quick control

Simple use of a single button and the cursor control enables you to direct your playback, without manipulating many actual buttons.

- **Using the Virtual Remote Control - V-REMOTE -**
- **Selecting the Playback Function - QUICK -**
- **Accessing Features - NAVI -**

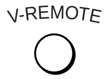
Using the Virtual Remote Control
- V-REMOTE -

Pressing one button can display a graphics based on-screen remote control that allows you to control playback as if you were doing it from the actual remote control.



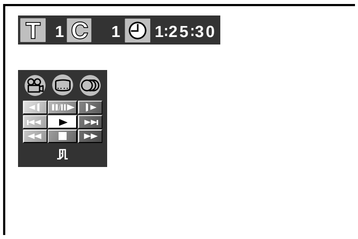
DVD-V VCD CD Using the virtual remote control

1 During playback, press V-REMOTE.

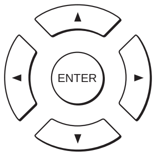


The graphic remote control (Virtual Remote) appears.
For the meaning of each icon, see right.

e.g. DVD-V

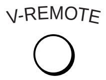


2 Press ▲ / ▼ / ◄ / ► to select the icon, and press ENTER.



■ To turn off the Virtual Remote

Press **V-REMOTE**.



Note
Some discs may not permit this operation.

■ Icons and features

See the pages in ▭ for details on the features.

Icon	Function	Page
T*	Current title/track number	–
C*	Current chapter number	–
◷*	Elapsed time of the current title/track	–
◎**	Audio setting	42
▭**	Subtitle setting	41
🎥**	Angle setting	40
◄I	Reverse slow motion playback	29
II/II►	Pause / Frame by frame playback	28
I►	To begin slow motion playback	29
I◄◄	Playback starts from the beginning of the current chapter or track.	31
►	Normal playback	26
►►I	To locate succeeding chapters or tracks.	31
◄◄	Fast reverse playback	28
■	To stop playback.	27
►►	Fast forward playback	28
⏎	To turn off the Virtual Remote.	

* You can access a desired location. After step 2, perform the steps below:

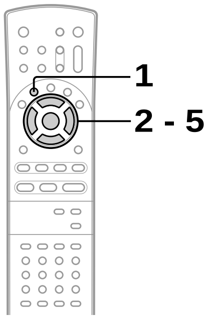
T / C : steps 3 to 5 on 31

◷ : steps 2 and 3 on 34

** After step 2, a sub menu will appear. Perform step 2 on the page in ▭.

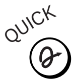
Selecting the Playback Function - QUICK -

Pressing one button can display a list of playback functions which are relevant to your current playback mode. You can check and modify them from the list.



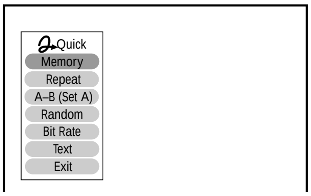
DVD-V VCD CD Selecting the playback function

1 During playback, press QUICK.

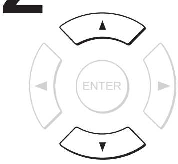


The following on-screen display appears.
(The actual display will vary depending on the playback status.)

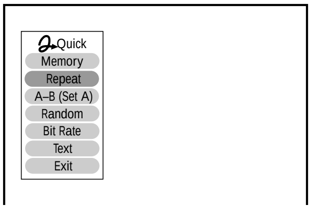
e.g. DVD-V


Quick
Memory
Repeat
A–B (Set A)
Random
Bit Rate
Text
Exit

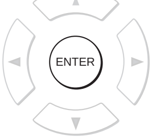
2 Press ▲ / ▼ to select a desired item.



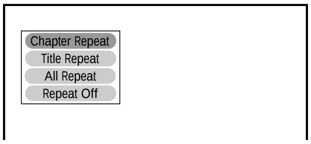
e.g. To change the repeat mode:


Quick
Memory
Repeat
A–B (Set A)
Random
Bit Rate
Text
Exit

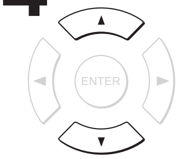
3 Press ENTER.



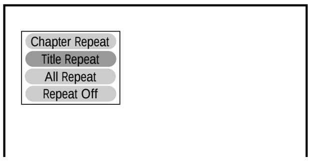
e.g. The mode menu appears.


Chapter Repeat
Title Repeat
All Repeat
Repeat Off

4 Press ▲ / ▼ to change the setting.



e.g. To select the title repeat mode:


Chapter Repeat
Title Repeat
All Repeat
Repeat Off

5 Press ENTER.

The on-screen display disappears and playback will resume according to your selection.

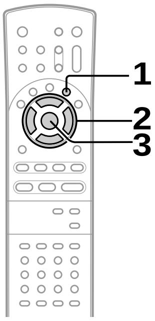
■ Quick menu

Memory :	To program memory playback. 36
Repeat :	To select the repeat playback mode. For the mode selections, see page 35.
A-B (Set A) :	At the beginning of a segment you want to repeat, press the ENTER button. Then at the end of the segment, press the ENTER button again. The segment is played repeatedly. 35
Random :	To select the random playback mode. For the mode selections, see page 37.
Bit Rate :	To activate the bitrate display. (Bit rate: data transfer rate (Mbit/s) Refers to the amount of picture, sound and subtitle data in the DVD video disc transferred per second. The larger the value, the more data processed, but this does not necessarily insure better picture quality.)
Text :	To activate the Text display. Text display: Displays DVD-Text data or CD-Text data if included on the disc. (Some content on the disc may not be displayed properly depending on the disc.)
Exit :	To quit the on-screen display.

Note
Pressing the QUICK button again also exits the on-screen display.

Accessing Features - NAVI -

The NAVI menu provides an icon based display from which you can easily access key playback function or setting.

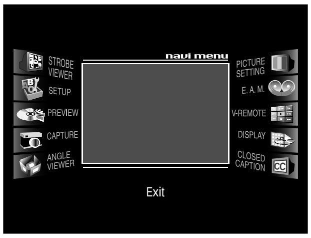


DVD-V VCD CD NAVI menu items

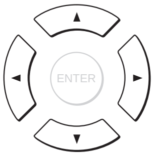
1 **Press NAVI.**

The NAVI menu appears.

e.g. DVD-V


navi menu
STROBE VIEWER
SETUP
PREVIEW
CAPTURE
ANGLE VIEWER
PICTURE SETTING
E. A. M.
V-REMOTE
DISPLAY
CLOSED CAPTION
Exit

2 **Press ▲ / ▼ / ◄ / ► to select a desired feature icon.**



For details on each feature, refer to the list on the next page.

3 **Press ENTER.**

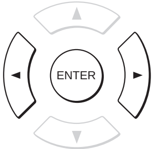
Selection details appears.

4 **Refer to the list on the next page and follow the instructions detailed on subsequent pages.**

■ To exit the NAVI menu

Press **NAVI**.

Alternatively press ◄ / ► to remove the highlight from an icon to the center position, and press **ENTER**.



Note

Depending on the disc, some features cannot be accessed.

Navi menu selections

STROBE VIEWER	You can divide a desired scene into stop action frames for careful analysis.	50
SETUP	You can change the default settings to customize performance to your preference.	56
PREVIEW	You can display thumbnail views of the first scenes of titles or chapters and select a preferred one.	50
CAPTURE	You can sample a scene from a playback picture and transform it into a background picture.	51
ANGLE VIEWER	You can display all camera angles simultaneously and select a preferred one from them.	51
PICTURE SETTING	You can fine tune picture quality and store up to 3 custom picture settings in the memory of the DVD player.	52
E.A.M.	You can easily switch a preferred audio enhancement.	39
V-REMOTE	You can control key playback functions using the graphics based on-screen remote control.	46
DISPLAY	You can view information about a disc and its operational status on the TV screen.	53
CLOSED CAPTION	You can display closed captions included on a DVD disc without connecting a closed caption decoder to your TV.	53

Accessing Features - NAVI - (continued)

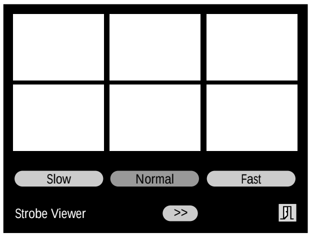
NAVI menu items

STROBE VIEWER

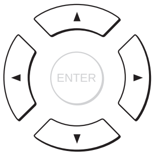
You can divide a desired scene into stop action frames for careful analysis.

After selecting this icon and pressing ENTER, the following on-screen display appears:

e.g.



1 Press ▲ / ▼ / ◄ / ► to select.



Slow:	Still pictures at shorter intervals.
Normal:	Still pictures at normal intervals.
Fast:	Still pictures at longer intervals.
>>:	To view the next series of 6 pictures.
↩ :	To quit the on-screen display.

2 Press **ENTER**.

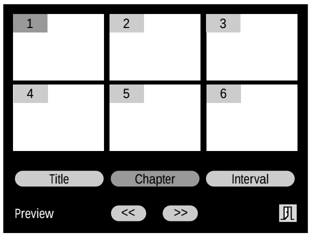
Note
Some discs or scenes may not permit this operation.

PREVIEW

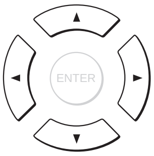
You can display thumbnail views of the first scenes of titles or chapters and select a preferred one.

After selecting this icon and pressing ENTER, the following on-screen display appears:

e.g.



1 Press ▲ / ▼ / ◄ / ► to select.



1 - 6:	To locate the scene.
Title:	To display the first scenes of titles (1 to 6).
Chapter:	To display the first scenes of chapters (1 to 6).
Interval:	To display scenes at intervals of about 10 minutes apart.
<< :	To go to the previous page.
>> :	To go to the next page.
↩ :	To quit the on-screen display.

2 Press **ENTER**.

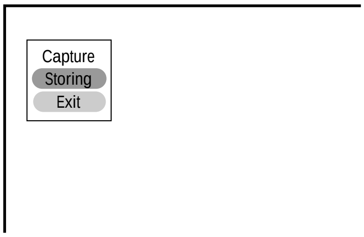
Notes
- Some discs or scenes may not permit this operation.
- Some items may not be selected depending on the disc or scene.
- Some of the first scenes may not picked up depending on the disc.

CAPTURE

You can sample a scene from a playback picture and transform it into a background picture.

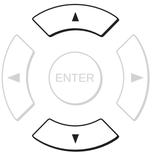
After selecting this icon and pressing ENTER, the following on-screen display appears:

e.g.



1 Pause playback at a scene you want to capture.

2 Press ▲ / ▼ to select.



Storing: To sample and store the current picture in the player memory.
Exit: To quit the on-screen display.

3 Press **ENTER**.

The stored picture will be displayed as a background picture when the player is in the stop mode. It is necessary to confirm this process via the setup menu 62.

Notes

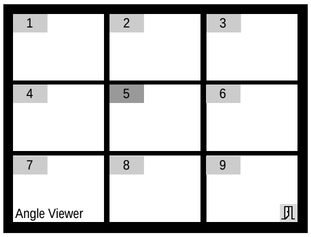
- You can store only one picture. Storing a new picture will erase the old one.
- No other operations are permitted while in the process of sampling and storage of background picture.
- Some discs or scenes may not permit this operation.

ANGLE VIEWER

You can display all camera angles simultaneously and select a preferred one from them.

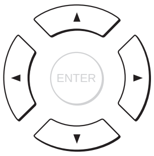
After selecting this icon and pressing ENTER, the following on-screen display appears:

e.g.



When the scene contains 9 camera angles:

1 Press ▲ / ▼ / ◄ / ► to select.



1-9 : To select the camera angle.
🚪 : To quit the on-screen display.

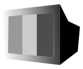
2 Press **ENTER**.

Note
Some discs or scenes may not permit this operation.

Accessing Features - NAVI - (continued)

NAVI menu items

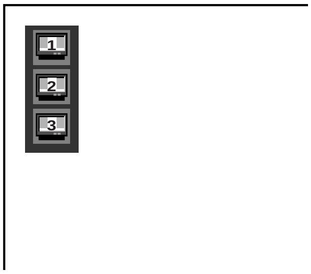
PICTURE SETTING



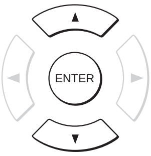
You can fine tune picture quality and store up to 3 custom picture settings in the memory of the DVD player.

After selecting this icon and pressing ENTER, the following on-screen display appears:

e.g.



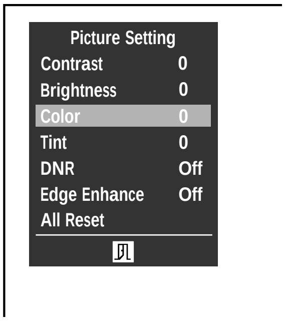
1 Press ▲ / ▼ to select, and press **ENTER**.



1, 2, 3: Select the desired custom memory number. (Follow steps 2 to 4 below.)

2 Press ▲ / ▼ to select the element.

e.g. When you select “Color”:

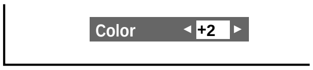


Picture Setting
Contrast 0
Brightness 0
Color 0
Tint 0
DNR Off
Edge Enhance Off
All Reset

3 Press **ENTER**.
The sub menu appears.

4 Press ◄ / ► to adjust the value, and press **ENTER**.

e.g.



Color ◄ +2 ►

Contrast :	-7 (Lower)	to	+7 (Higher)
Brightness :	-7 (Darker)	to	+7 (Brighter)
Color:	-7 (Duller)	to	+7 (Brighter)
Tint :	-7 (Redder)	to	+7 (Greener)
DNR[*1] :	On / Off		
Edge Enhance[*2] :	On / Off		
All Reset :	To restore all the elements to the normal setting. A message will appear. Follow the procedure displayed on-screen.		

[*1]: DNR: Digital Noise Reduction.
To view a picture with less video noise.

Notes
- Actual picture enhancement may vary depending on the quality of the disc.
- While the DNR feature can provide additional improvement in the reduction of noise in the video signal, it may produce undesirable picture artifacts on some discs.
- Depending on the disc, some kinds of picture details may be lost by the picture enhancement.

[*2]: To enhance picture edges.

Note
The Tint adjustment is not available when connecting to a TV via the component video jacks (Y, P_B, P_R).

■ Using the remote control to adjust the brightness

Press BRIGHTNESS (+/–).
Each time you press the button, the brightness changes.

■ Using the remote control to select the DNR feature

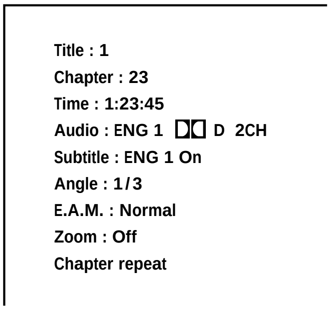
Press DNR.
Each time you press the button, the feature turns on or off.

DISPLAY

You can view information about a disc and its operational status on the TV screen.

After selecting this icon and pressing ENTER, the following on-screen display appears:

e.g.



Title : 1
Chapter : 23
Time : 1:23:45
Audio : ENG 1 DD D 2CH
Subtitle : ENG 1 On
Angle : 1 / 3
E.A.M. : Normal
Zoom : Off
Chapter repeat

To quit the on-screen display, press **ENTER**.

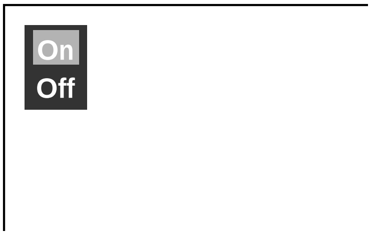
Note
Some discs or scenes may not permit this operation.

CLOSED CAPTION

You can display closed captions included on a DVD disc without connecting a closed caption decoder to your TV.

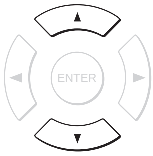
After selecting this icon and pressing ENTER, the following on-screen display appears:

e.g.



On
Off

1 Press ▲ / ▼ to select.



On : To display closed captions.
Off: To disable closed captions.

2 Press **ENTER**.

Notes
- While you are using on-screen displays (including the above one), you cannot view closed captions.
- When “On” is selected, some displays such as “▷” may be disabled.

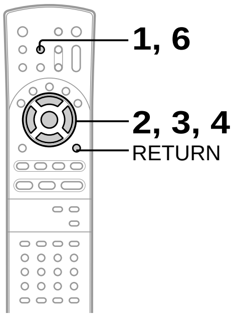
Function Setup

You can change the default settings to customize performance to your preference.

- **Customizing the Function Settings**
- **Table of Languages**

Customizing the Function Settings

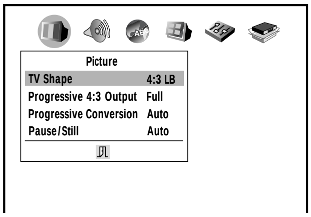
You can change the default settings to customize performance to your preference.



DVD-V VCD CD Setting procedure

1 **Press SETUP during stop.**

The following on-screen display appears.

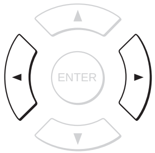


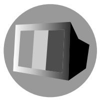
Picture

TV Shape	4:3 LB
Progressive 4:3 Output	Full
Progressive Conversion	Auto
Pause/Still	Auto

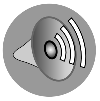
2 **Press ◄ / ► to select a symbol for the setting you want to change.**

(See the next page.)

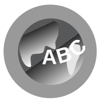




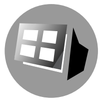
Picture performance settings



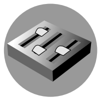
Output sound settings



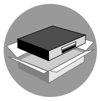
Language settings



Display settings

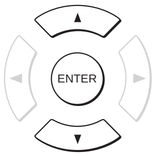


Operational settings

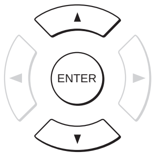


Initializing

3 **Press ▲ / ▼ to select the setting you want to change, then press ENTER.**



4 **Change the selection by ▲ / ▼ or other buttons, by referring to the corresponding pages 58〉, then press ENTER.**



5 **Repeat steps 3 and 4 to change other settings.**

To select another operation, go back to step 2.

6 **Press SETUP.**

The on-screen display disappears.

■ To return to the previous display

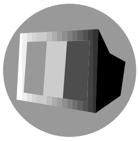
Press **RETURN**.

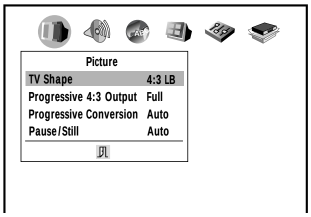
Notes

- The on-screen display disappears also when you select “⎍” and press the ENTER button.
- The SETUP button can function even during normal playback, however some operations may be inaccessible, and a message will appear. In this case, try again after playback is stopped.

Setting		Details	Page
TV Shape	DVD-V	**To select a picture size according to the aspect ratio of your TV.**	**58**
Progressive 4:3 Output	DVD-V VCD	**To select the video output of pictures recorded in 4:3 format. (Only when connected to a PROGRESSIVE TV.)**	**58**
Progressive Conversion	DVD-V	**To select the system of output signal. (Only when connected to a PROGRESSIVE TV.)**	**58**
Pause/Still	DVD-V	**To select the resolution of still pictures. (Field/Frame)**	**58**
PCM Down Sampling	DVD-V	**To select a sound processing option according to performance of the connected equipment. (Only when the BITSTREAM/PCM (DIGITAL) AUDIO OUT jack is connected.)**	**59**
Digital Output	DVD-V VCD CD	**To select an output sound format corresponding to your system connection.**	**59**
Dynamic Range Control	DVD-V	**To turn on or off a function that makes faint sounds easier to hear even if you lower the volume during late hours playback.**	**59**
Karaoke Vocal	DVD-V	**To turn on or off the vocal output during DVD KARAOKE disc playback.**	**60**
On-Screen Language	DVD-V VCD CD	**To select a preferred language for on-screen displays.**	**60**
Disc Menu Language	DVD-V	**To select a preferred language for disc menus.**	**60**
Audio Language	DVD-V	**To select a preferred language for the sound track.**	**61**
Subtitle Language	DVD-V	**To select a preferred language for subtitles.**	**61**
On-Screen Displays	DVD-V VCD CD	**To turn on or de-activate the operational status display on the TV screen.**	**62**
Background	DVD-V VCD CD	**To select the background color or background picture.**	**62**
Screen Saver	DVD-V	**To turn the screen saver on or off.**	**62**
Parental Lock	DVD-V	**To turn the parental lock function on or off.**	**62**
Remote Confirmation	DVD-V VCD CD	**To turn on or off the confirmation beeper announcing when each remote command received.**	**64**
Title Stop	DVD-V	**To turn on or off a feature that automatically stops playback after a title has been viewed.**	**64**
PBC	VCD	**To use the menu screen when playing a PBC-controllable VIDEO CD.**	**64**
Priority Contents		**To select the playback priority between JPEG (picture) files and MP3 (audio) files.**	**64**
Initialize	DVD-V VCD CD	**To restore all settings to the factory set.**	**64**

Setting details



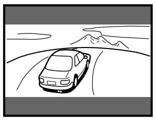


Picture

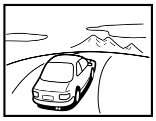
TV Shape	4:3 LB
Progressive 4:3 Output	Full
Progressive Conversion	Auto
Pause/Still	Auto

TV Shape DVD-V

4:3 Letterbox: Select when a standard 4:3 TV is connected.
Displays theatrical images with masking bars above and below the picture.



4:3 Normal: Select when a standard 4:3 TV is connected.
Displays pictures cropped to fill your TV screen. Either or both sides of the picture are cut off.



16:9 Widescreen: Select when a 16:9 wide TV is connected.

Notes

- The displayable picture size is preset on the DVD video disc. Therefore, the playback picture of some DVD video discs may not conform to the picture size you select.
- When you play DVD video discs recorded in the 4:3 picture size only, the playback picture always appears in the 4:3 picture size regardless of the TV shape setting.
- If you select “16:9 Widescreen” and you own a 4:3 TV set, the DVD playback picture will be horizontally distorted during playback. Images will appear to be horizontally compressed. Always be sure that your TV shape conforms to the actual TV in use.

Progressive 4:3 Output DVD-V VCD

Select the video output of pictures recorded in 4:3 format. (Only when connected to a PROGRESSIVE TV.)

Full: Displays pictures expanded horizontally to fill the 16:9 screen.

4:3: Displays images in 4:3 aspect ratio with masking bars to the left and right of the picture. (Select this option when a connected TV cannot select 4:3 picture size. However, subtitles or menus may not work properly.)

Progressive Conversion DVD-V

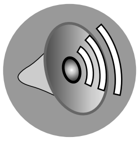
There are two types of source content in pictures recorded in DVD video discs: film content (pictures recorded from films at 24 frames per second) and video content (video signals recorded at 30 frames per second). Make this selection according to the type of content being viewed.

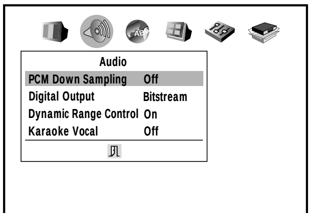
Auto: Select this position normally.
The DVD player automatically detects source content, film or video, of playback source, and converts that signal to the progressive output format in an appropriate method.
Video: The DVD player filters video signal, and converts it to the progressive output format appropriately.
Suitable for playback of video content pictures.
Film: The DVD player converts film content pictures to the progressive output format appropriately.
Suitable for playback of film content pictures.
The progressive output feature will be most effective under this selection.

Note
Depending on the disc, pictures may be cut off or doubled. In this case, select “Video.”

Pause/Still DVD-V

Auto: For normal use. Still and fast motion images can be paused.
Frame: The resolution of still pictures is improved, so that you can make a motionless picture more clearer when you pause it.





Audio

PCM Down Sampling	Off
Digital Output	Bitstream
Dynamic Range Control	On
Karaoke Vocal	Off

PCM Down Sampling DVD-V

Make this selection only when you use your audio equipment (e.g. receiver) connecting to the DVD player via the BITSTREAM/PCM (DIGITAL) AUDIO OUT jack.

According to performance of your connected receiver, select a sound processing option for playback of a disc that contains high frequency signals (sampling frequency 96 kHz).

Off: Select when your connected receiver processes high frequency signals of 96 kHz.
The DVD player outputs these signals as they are on the disc.

On: Select when your connected receiver does not process high frequency signals of 96 kHz.
The DVD player outputs these signals in a disc depressing the frequencies to 48 kHz.

Notes

- Regardless of this setting, high frequency signals on a DVD disc are down-converted to 48 kHz if that disc is copy protected.
- If you select “Off” because your connected receiver does not process high frequency signals of 96 kHz, you will not hear output sound from those signals.

Digital Output DVD-V VCD CD

Select the output sound format corresponding to your system connection.
For details of sound recording systems, see 43.

Bitstream:	Select when connected to an amplifier equipped with a Dolby Digital, DTS, MPEG1 or MPEG2 decoder. 21 22 The DVD player outputs digital audio information in the bitstream format when you play a DVD video disc recorded on the Dolby Digital, DTS, MPEG1 or MPEG2 recording system.
PCM:	Select when connected to a 2 channel digital stereo amplifier. 23 The DVD player outputs sounds in the PCM 2ch format when you play a DVD video disc recorded on the Dolby Digital, MPEG1 or MPEG2 recording system.

Note

When you make a connection to a TV, or Dolby Surround Pro Logic or stereo system via the analog audio jacks, select “Bitstream” or “PCM.”

Dynamic Range Control DVD-V

Off: Full dynamic range is maintained.
On: Dynamic range is reduced.

Notes

- This function works only during playback of Dolby Digital recorded discs.
- The level of Dynamic Range Reduction may differ depending on the DVD disc.

Customizing the Function Settings (continued)

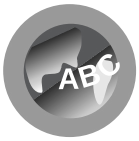
Setting details

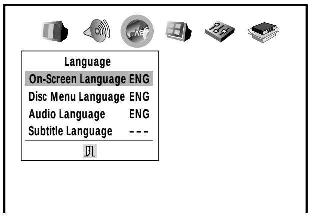
Karaoke Vocal DVD-V

Off: The primary vocal is not output.
On: The primary vocal is output when it is recorded on the disc.

Notes

- The vocal output feature is used during playback of Dolby Digital (multi-channel) recorded DVD KARAOKE discs. This feature allows you to turn off vocal audio tracks, or restore them for background accompaniment.
- When playing KARAOKE, connect appropriate audio equipment such as an amplifier to the DVD player.





Language
On-Screen Language ENG
Disc Menu Language ENG
Audio Language ENG
Subtitle Language ---

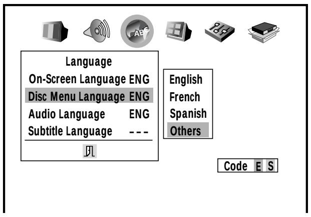
On-Screen Language DVD-V VCD CD

English: To view on-screen displays in English.
Français: To view on-screen displays in French.
Español: To view on-screen displays in Spanish.

Disc Menu Language DVD-V

English: To display disc menus in English.
French: To display disc menus in French.
Spanish: To display disc menus in Spanish.
Others: To make a further choice.
After pressing the ENTER button, follow steps 1) - 4) below.

1) Obtain the abbreviation of the preferred language from the list 65.
2) Select the first character by pressing the ▲ / ▼ buttons.
3) Press the ◄ / ► buttons to shift and select the second character by pressing the ▲ / ▼ buttons.



Language
On-Screen Language ENG
Disc Menu Language ENG
Audio Language ENG
Subtitle Language ---

English
French
Spanish
Others

Code E S

4) Press the ENTER button.

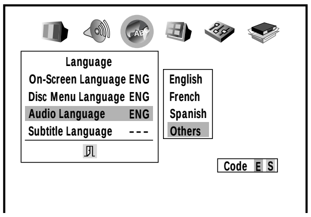
Note

Some DVD video discs may not include your pre-selected language. In this case, the DVD player automatically displays disc menus consistent with the disc's initial language setting.

Audio Language DVD-V

English:	To play sound tracks in English.
French:	To play sound tracks in French.
Spanish:	To play sound tracks in Spanish.
Others:	To make a further choice. After pressing the ENTER button, follow steps 1) - 4) below.

1) Obtain the abbreviation of the preferred language from the list 65.
2) Select the first character by pressing the ▲ / ▼ buttons.
3) Press the ◄ / ► buttons to shift and select the second character by pressing the ▲ / ▼ buttons.


Language
On-Screen Language ENG
Disc Menu Language ENG
Audio Language ENG
Subtitle Language - - -
English
French
Spanish
Others
Code E S

4) Press the ENTER button.

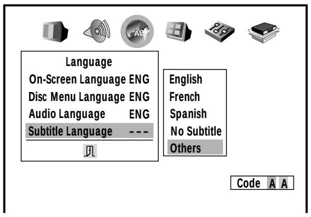
Note

Some DVD video discs may be played in a different language than you selected. A prior language may be programmed on the disc.

Subtitle Language DVD-V

English:	To display subtitles in English.
French:	To display subtitles in French.
Spanish:	To display subtitles in Spanish.
No Subtitle:	To disable subtitles.
Others:	To make a further choice. After pressing the ENTER button, follow steps 1) - 4) below.

1) Obtain the abbreviation of the preferred language from the list 65.
2) Select the first character by pressing the ▲ / ▼ buttons.
3) Press the ◄ / ► buttons to shift and select the second character by pressing the ▲ / ▼ buttons.

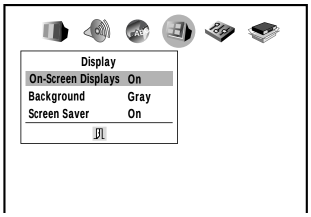

Language
On-Screen Language ENG
Disc Menu Language ENG
Audio Language ENG
Subtitle Language - - -
English
French
Spanish
No Subtitle
Others
Code A A

4) Press the ENTER button.

Notes

- Some DVD video discs may be set to display subtitles in a different language than you selected. A prior subtitle language may be programmed on the disc.
- Some DVD video discs allow you to change subtitle selections only via the disc menu. If this is the case, press the MENU button and choose the appropriate subtitle language from the selection on the disc menu.

Setting details



Display
On-Screen Displays On
Background Gray
Screen Saver On

On-Screen Displays DVD-V VCD CD

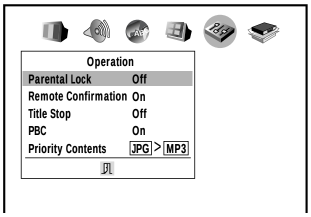
Off: Operational modes (e.g. "❚❚", "▷▷") are not displayed.
On: Operational modes (e.g. "❚❚", "▷▷") are displayed on-screen.

Background DVD-V VCD CD

Blue:	Blue background.
Gray:	Gray background.
Capture:	To use a picture you sampled and stored in the memory using the Capture feature 51 as a background.
Jacket:	To use the jacket picture included on some discs as a background. If it is not included, a gray background will be substituted.

Screen Saver DVD-V

Off: The screen saver is disengaged.
On: The screen saver operates.



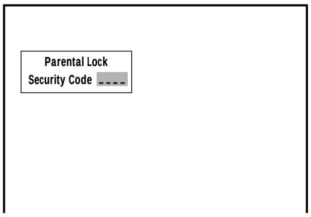
Operation
Parental Lock Off
Remote Confirmation On
Title Stop Off
PBC On
Priority Contents JPG > MP3

Parental Lock DVD-V

DVD video discs equipped with the parental lock function are rated according to their content. The contents allowed by a parental lock level and the way a DVD video disc can be controlled may vary from disc to disc. For example, if the disc allowed you could edit out violent scenes unsuitable for children and replace them with more suitable scenes, or lock out playback of the disc altogether.

- DVD video discs may or may not respond to the parental lock settings. This is not a defect in the DVD player. Make sure this function works with your DVD video discs.

Off: The parental lock feature does not function.
After pressing the ENTER button, follow step 1) below.
On: To activate the parental lock feature or change the settings.
After pressing the ENTER button, follow steps 1) - 3) below.



Parental Lock
Security Code _ _ _ _

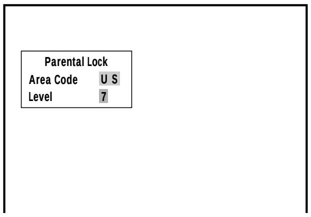
1) Press the number buttons to create a personal 4-digit security code, then press the ENTER button.
If you make a mistake before pressing the ENTER button, press the CLEAR button and enter your 4-digit security code again.

2) Enter the code of a country/area whose standards were used to rate the DVD video disc, referring to the list below.

Country/Area	Code
AUSTRALIA	AU
BELGIUM	BE
CANADA	CA
CHINA	CN
CHINA HONG KONG	HK
DENMARK	DK
FINLAND	FI
FRANCE	FR
GERMANY	DE
INDONESIA	ID
ITALY	IT
JAPAN	JP
MALAYSIA	MY
NETHERLANDS	NL
NORWAY	NO
PHILIPPINES	PH
RUSSIAN FEDERATION	RU
SINGAPORE	SG
SPAIN	ES
SWEDEN	SE
SWITZERLAND	CH
TAIWAN	TW
THAILAND	TH
UNITED KINGDOM	GB
UNITED STATES	US

a) Select the first character by pressing the ▲ / ▼ buttons.
b) Press the ◄ / ► buttons to shift and select the second character by pressing the ▲ / ▼ buttons.
c) Press the ENTER button.

3) Press the ▲ / ▼ buttons to select the parental lock level, then press the ENTER button.



Parental Lock
Area Code U S
Level 7

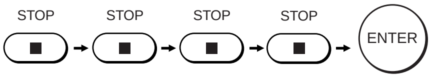
You cannot play DVD video discs rated higher than the level you selected unless you cancel the parental lock function.
For example, when you select level 7, discs rated higher than level 7 are locked out and cannot be played.

The parental lock level is equivalent to the following USA movie ratings.
Level 7: NC-17
Level 6: R
Level 4: PG 13
Level 3: PG
Level 1: G

The parental lock levels for other countries/areas than U.S. are included for future use. Check the appropriate parental lock level when you buy a DVD video disc equipped with the parental lock feature in the future.

■ **To change the parental lock level**
Follow steps 1) - 3).

■ **To change your 4-digit security code**
1) After selecting “On” or “Off,” press the STOP button four times, then press the ENTER button.



The 4-digit security code is cleared.
2) Press the number buttons to create a new 4-digit security code.
3) Press the ENTER button.

Note
After making the “Parental Lock” setting, the on-screen display will disappear. To make other settings, press the SETUP button again to display them.

Setting details

Remote Confirmation DVD-V VCD CD

Off: The beeper does not sound.
On: The beeper sounds with each remote operation.

Title Stop DVD-V

Off: The DVD player continues after playback of a title is completed.
On: The DVD player stops after playback of a title is completed.

PBC VCD

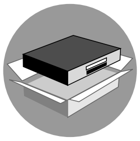
Off: When playing a VIDEO CD without using the menu.
On: To use the menu when playing a PBC-featured VIDEO CD.

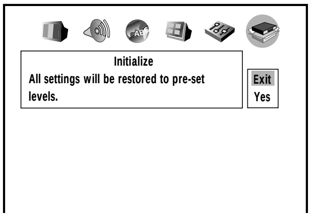
Priority Contents

To select the playback priority between JPEG (picture) files and MP3 (audio) files.

JPG > MP3: JPEG files take priority over MP3 files.
MP3 > JPG: MP3 files take priority over JPEG files.

Refer to the separate booklet “Digital Photo Viewer” on how to play a disc containing JPEG format files.



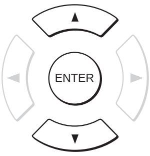


Initialize
All settings will be restored to pre-set levels.

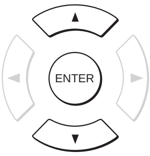
Initialize DVD-V VCD CD

To restore all settings to the factory set.

1) Press the ▲ / ▼ buttons to select “Yes,” and press the **ENTER** button.



2) Read the message, and if you really want to restore all settings, press the ▲ / ▼ buttons to select “Yes,” and press the **ENTER** button.



The message of completion appears.

Note
The “Parental Lock” setting is not restored to the factory set.

Table of Languages

Table of languages and their abbreviations

Abbreviation	Language
– – –	No alternate language
CHI (ZH)	Chinese
DUT (NL)	Dutch
ENG (EN)	English
FRE (FR)	French
GER (DE)	German
ITA (IT)	Italian
JPN (JA)	Japanese
KOR (KO)	Korean
MAY (MS)	Malay
SPA (ES)	Spanish
AA	Afar
AB	Abkhazian
AF	Afrikaans
AM	Amharic
AR	Arabic
AS	Assamese
AY	Aymara
AZ	Azerbaijani
BA	Bashkir
BE	Belorussian
BG	Bulgarian
BH	Bihari
BI	Bislama
BN	Bengali, Bangla
BO	Tibetan
BR	Breton
CA	Catalan
CO	Corsican
CS	Czech
CY	Welsh
DA	Danish
DZ	Bhutani
EL	Greek
EO	Esperanto
ET	Estonian
EU	Basque
FA	Persian
FI	Finnish
FJ	Fiji
FO	Faroese
FY	Frisian
GA	Irish
GD	Scottish Gaelic
GL	Galician
GN	Guarani
GU	Gujarati
HA	Hausa
HI	Hindi
HR	Croatian
HU	Hungarian
HY	Armenian
IA	Interlingua
IE	Interlingue
IK	Inupiak
IN	Indonesian
IS	Icelandic
IW	Hebrew
JI	Yiddish
JW	Javanese
KA	Georgian
KK	Kazakh
KL	Greenlandic
KM	Cambodian
KN	Kannada
KS	Kashmiri
KU	Kurdish
KY	Kirghiz
LA	Latin
LN	Lingala
LO	Laotian
LT	Lithuanian
LV	Latvian, Lettish
MG	Malagasy
MI	Maori
MK	Macedonian
ML	Malayalam
MN	Mongolian
MO	Moldavian
MR	Marathi
MT	Maltese
MY	Burmese
NA	Nauru
NE	Nepali
NO	Norwegian
OC	Occitan
OM	(Afan) Oromo
OR	Oriya
PA	Panjabi
PL	Polish
PS	Pashto, Pushto
PT	Portuguese
QU	Quechua
RM	Rhaeto-Romance
RN	Kirundi
RO	Rumanian
RU	Russian
RW	Kinyarwanda
SA	Sanskrit
SD	Sindhi
SG	Sango
SH	Serbo-Croatian
SI	Singhalese
SK	Slovak
SL	Slovenian
SM	Samoan
SN	Shona
SO	Somali
SQ	Albanian
SR	Serbian
SS	Siswati
ST	Sesotho
SU	Sundanese
SV	Swedish
SW	Swahili
TA	Tamil
TE	Telugu
TG	Tajik
TH	Thai
TI	Tigrinya
TK	Turkmen
TL	Tagalog
TN	Setswana
TO	Tongan
TR	Turkish
TS	Tsonga
TT	Tatar
TW	Twi
UK	Ukrainian
UR	Urdu
UZ	Uzbek
VI	Vietnamese
VO	Volapük
WO	Wolof
XH	Xhosa
YO	Yoruba
ZU	Zulu

Others

- Before Calling Service Personnel
- Specifications
- LIMITED WARRANTY DVD PLAYER

Before Calling Service Personnel

Check the following guide for the possible cause of a problem before contacting service.

Symptoms and correction

Symptom	Cause	Correction	Page
No power.	• The power plug is disconnected.	• Connect the power plug securely into the wall outlet.	**18**
The DVD player turned off by itself.	• The automatic power off function turned the unit off.	• Press the PLAY button.	**27**
No picture.	• The TV is not set to receive DVD signal output.	• Select the appropriate video input mode on the TV so the picture from the DVD player appears on the TV screen.	**26**
	• The video cable is not connected securely.	• Connect the video cable securely into the appropriate jacks.	**18, 19**
No sound.	• The equipment connected with the audio cable is not set to receive DVD signal output.	• Select the correct input mode of the audio receiver so you can listen to the sound from the DVD player.	**26**
	• The audio cable is not connected securely.	• Connect the audio cable securely into the appropriate jacks.	**18-23**
	• The audio receiver or TV is turned off.	• Turn on the equipment connected with the audio cable.	**26**
	• The setting of output sound format is incorrect.	• Select the proper audio setting.	**42, 56 59**
The playback picture has occasional distortion.	• The disc is dirty.	• Eject the disc and clean it.	**9**
	• It is in fast forward or fast reverse playback.	• Sometimes a small amount of picture distortion may appear. This is not a malfunction.	**–**
Brightness is unstable or noises are present in the playback pictures.	• The effect of copy protection.	• Connect the DVD player directly to the TV. Avoid connecting the DVD player to a VCR or TV/VCR combination.	**18**
The DVD player does not start playback.	• No disc is inserted.	• Insert a disc.	**26**
	• An unplayable disc is inserted.	• Insert a playable disc. (Check the disc type.)	**10**
	• The disc is placed upside down.	• Place the disc with the playback side down.	**26**
	• The disc is not placed within the guide.	• Place the disc correctly inside the guide on the disc tray.	**26**
	• The disc is dirty.	• Clean the disc.	**9**
	• The parental lock function is set.	• Cancel the parental lock function or change the parental lock level.	**56, 62**
Playback does not follow the course of the disc’s program.	• It is in the mode of repeat playback, memory playback, etc.	• These operations may prevent a proper progress of the contents.	**–**
Buttons do not work.	• Power supply fluctuations or other abnormalities such as static electricity may interrupt correct operations.	• Press and hold the ON/STANDBY button on the front panel for more than about 3 seconds. The DVD player turns off. Press the button again to turn it on. If the buttons still do not work, disconnect the power plug and insert it into the wall outlet again.	**–**
The remote control does not work properly.	• The remote control is not pointed at the remote sensor of the DVD player.	• Point the remote control at the remote sensor of the DVD player.	**15**
	• The remote control is too far from the DVD player.	• Operate the remote control within about 7 m.	**15**
	• The batteries in the remote control are exhausted.	• Replace the batteries with new ones.	**15**

Specifications

DVD player / outputs / supplied accessories

DVD player

Power supply	120 V AC, 60 Hz
Power consumption	16 W
Mass	2.5 kg
External dimensions	430 × 69 × 219 mm (W/H/D)
Signal system	Standard NTSC
Laser	Semiconductor laser, wavelength 650 nm / 780 nm
Frequency range	DVD linear sound : 48 kHz sampling 4 Hz to 22 kHz 96 kHz sampling 4 Hz to 44 kHz
Signal-to-noise ratio	More than 112 dB
Audio dynamic range	More than 108 dB
Harmonic distortion	Less than 0.002 %
Wow and flutter	Below measurable level (less than ±0.001 % (W.PEAK))
Operating conditions	Temperature: 5 °C to 35 °C, Operation status: Horizontal

Outputs

Video output	1.0 V (p-p), 75 Ω, negative sync., pin jack × 1
S video output	(Y) 1.0 V (p-p), 75 Ω, negative sync., Mini DIN 4-pin × 1 (C) 0.286 V (p-p), 75 Ω
Component video output	(Y) 1.0 V (p-p), 75 Ω, negative sync., pin jack × 1 (P_B)/(P_R) 0.7 V (p-p), 75 Ω, pin jack × 2
Audio output (BITSTREAM/PCM OPTICAL)	Optical connector × 1
Audio output (BITSTREAM/PCM COAXIAL)	0.5 V (p-p), 75 Ω, pin jack × 1
Audio output (ANALOG AUDIO)	2.0 V (rms), 680 Ω, pin jacks (L, R) × 1

Supplied Accessories

Audio/video cable 1
Remote control (SE-R0070 or SE-R0073) 1
Batteries (AAA) 2

- Designs and specifications are subject to change without notice.

LIMITED WARRANTY DVD PLAYER

Toshiba America Consumer Products, Inc. (“TACP”), Toshiba Hawaii (“THI”) and Toshiba Canada Limited (“TCL”) make the following limited warranties. These limited warranties extend to original purchaser or any person receiving this set as a gift from the original purchaser and to no other purchaser or transferee.

Limited Ninety (90) Day Warranty

TACP/THI warrant this product against defects in materials or workmanship for a period of ninety (90) days after the date of original retail purchase. During this period, TACP/THI will repair or replace a defective product or part, at their option, with a new or refurbished product or part without charge to you. You must deliver the entire product to a TACP/THI Authorized Service Station. You are responsible for all transportation and insurance charges for the unit to and from the Authorized Service Station. If you live in the U.S.A. you may, at your option, return your DVD Unit to:

Toshiba America Consumer Products Inc.
Returns Center
1420C Toshiba Dr.
Lebanon, TN 37087

Upon receipt we will, at our option, exchange the DVD Unit with a new or refurbished unit. **Canadian consumers are requested to contact TCL. In Hawaii consumers are requested to contact THI.**

Limited One (1) Year Warranty

TACP/THI further warrant the parts in this product against defects in materials or workmanship for a period of one (1) year after the date of original retail purchase. During this period, TACP/THI will repair or replace a defective product or part, at their option, with a new or refurbished product or part without charge to you, except that if a defective part is replaced after ninety (90) days from the date of the original retail purchase you pay labor charges involved in the replacement. You must also deliver the entire product to a TACP/THI Authorized Service Station. You are responsible for all transportation and insurance charges for the unit to and from the Authorized Service Station. If you live in the U.S.A. you may, at your option, return your DVD Unit to:

Toshiba America Consumer Products Inc.
Returns Center
1420C Toshiba Dr.
Lebanon, TN 37087

Upon receipt we will, at our option, exchange the DVD Unit with a new or refurbished unit. **Canadian Consumers are requested to contact TCL. In Hawaii consumers are requested to contact THI.**

Rental Units

The warranty for rental units begin with the first rental or thirty (30) days from the date of shipment to the rental firm, whichever comes first.

Commercial Units

Products sold and used for commercial use have a limited ninety (90) day warranty for all parts and labor.

Owner’s Manual

You should read the owner’s manual thoroughly before operating this product. You should complete and mail the enclosed Demographic card within ten (10) days after you, or the person who has given you this product as a gift, purchased this product. This is one way to enable TACP to provide you with better customer service and improved products. Failure to return the card will not affect your rights under this warranty.

Your Responsibility

The above warranties are subject to the following conditions:

(1) You must retain your bill of sale or provide other proof of purchase.
(2) You must notify a TACP/THI/TCL /Authorized Service Station within thirty (30) days after you discover a defective product or part.
(3) All warranty servicing of this product must be made by a TACP/THI/TCL Authorized Service Station.
(4) U.S.A. warranties are effective only if the product is purchased and operated in the Continental U.S.A. or Puerto Rico.
(5) Labor service charges for set installation. Set up, adjustment of customer controls and installation or repair of antenna systems are not covered by this warranty. Reception problems caused by inadequate antenna systems are your responsibility.
(6) Warranties extend only to defects in materials or workmanship as limited above and do not extend to any product or parts which have been lost or discarded by you or to damage to products or parts caused by misuse, accident, damage caused by Acts of God, such as lighting or fluctuations in electric power, improper installation, improper maintenance or use in violation of instructions furnished by us; or to units which have been altered or modified without authorization of TACP/THI/TCL or to damage to products or part thereof which have had the serial number removed, altered, defaced or rendered illegible.
(7) Should you elect to return your DVD Unit to TACP after the ninety (90) days and within one (1) year, or after the warranty period has expired: Call (800)-631-3811 to receive information concerning an exchange price. Payment must be enclosed with product in the form of a certified check or money order including reason for return.
(8) Physically damaged DVD Units are not acceptable for repair or exchange whether in or out of warranty and will be returned as received.

How to Obtain Warranty Service

(1) Refer to the troubleshooting guide in your owner's manual. This check list may solve your problem.
(2) In the U.S.A., only call the TACP toll free number 800-631-3811, or if in Hawaii or Canada see listing below within (30) days after you find a defective product or part.
(3) Arrange for the delivery of the product to the TACP/THI/TCL Authorized Service Station or TACP Return Center. Products shipped to the Service Station must be insured and safely and securely packed, preferably in the original shipping carton, and a letter explaining the defect and also a copy of the bill of sale or other proof of purchase must be enclosed.

In the Continental United States contact:

Toll Free
800-631-3811

In Hawaii contact:
Toshiba Hawaii Inc.
327 Kamakee Street
Honolulu, HA 96814
(808)-521-5377

In Canada contact:
Consumer Electronics Group
191 McNabb Street
Markham, Ontario L3R 8H2
(905)-470-5400

Consumer Electronics Group
22171 Fraserwood Way
Richmond, B.C. V6W 1J5
(604)-303-2500

Consumer Electronics Group
1643 North Service Road
Droval, QC H9P 1J1
(514)-856-4100

All warranties implied by state law, including the implied warranties of merchantability and fitness for a particular purpose, are expressly limited to the duration of the limited warranties set forth above. With the exception of any warranties implied by state law as hereby limited, the foregoing warranty is exclusive and in lieu of all other warranties, guarantees, agreements and similar obligations of manufacturer or seller with respect to the repair or replacement of any parts. In no event shall TACP/THI be liable for consequential or incidental damages.

No person, agent, distributor, dealer or company is authorized to change, modify or extend the terms of these warranties in any manner whatsoever. The time within which an action must be commenced to enforce any obligation of TACP/THI arising under the warranty or under any statute, or law of the United States or any state thereof, is hereby limited to ninety (90) days from the date you discover or should have discovered, the defect. This limitation does not apply to implied warranties arising under state law.

This warranty gives you specific legal rights and you may also have other rights which may vary from state to state. Some states do not allow limitation on how long an implied warranty lasts, when an action may be brought, or the exclusion or limitation of incidental or consequential damages, so the above provisions may not apply to you.

ATTENTION CANADIAN CONSUMERS:
Canadian consumers are requested to complete the special Canadian "Warranty Registration Form" enclosed, and forward this completed form with a copy of bill of sale to TOSHIBA OF CANADA to "Register and Validate" their warranty. Product must be purchased from an Authorized Canadian Dealer. Products purchased in the U.S.A. and used in Canada are not covered by these warranties.

IMPORTANT: PACKING AND SHIPPING INSTRUCTION
When you send the product to a Service Station, you must use the original carton box and packing material, then insert the original carton box containing the unit into another carton using more packing material.

2. LOCATION OF MAIN PARTS AND MECHANISM PARTS

2-1. Location of Main Parts

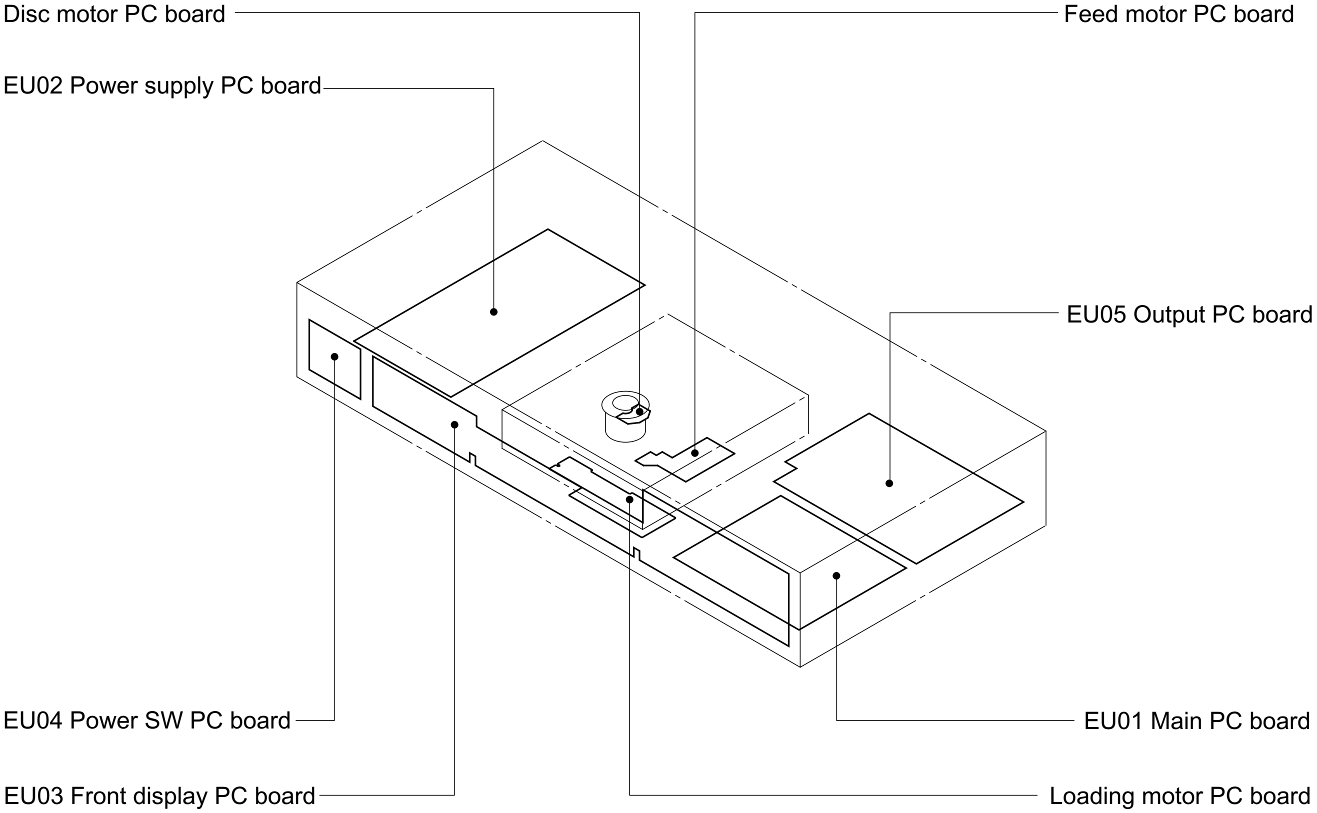

Disc motor PC board
EU02 Power supply PC board
Feed motor PC board
EU05 Output PC board
EU04 Power SW PC board
EU03 Front display PC board
EU01 Main PC board
Loading motor PC board

Fig. 1-2-1

2-2. Location of Mechanism Parts

2-2-1. Type A

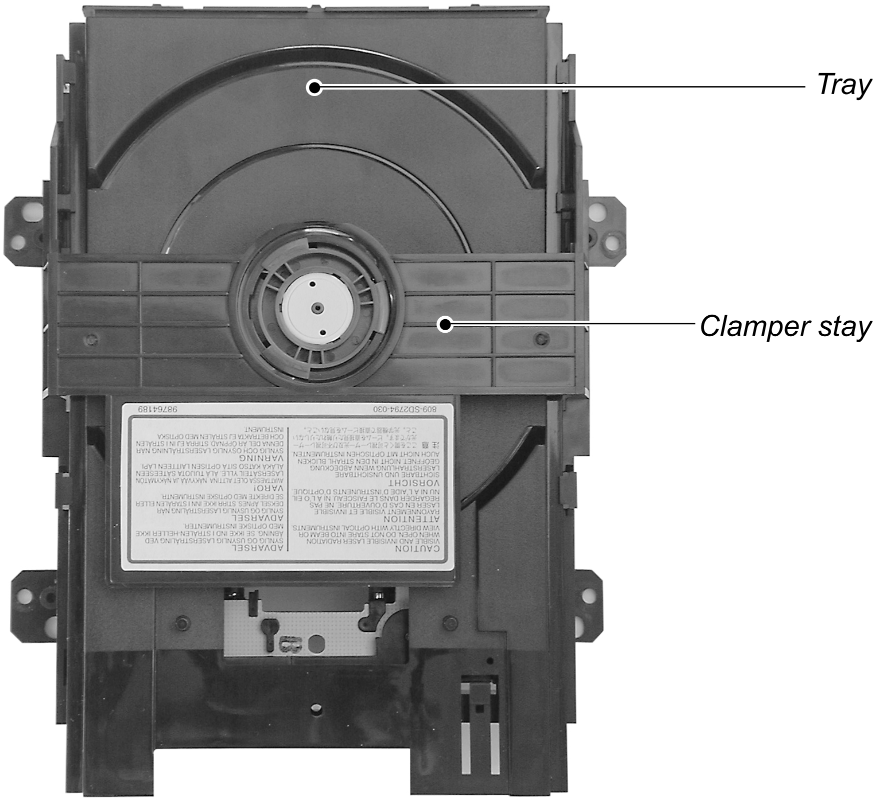

Tray
Clamper stay

Fig. 1-2-2 Mechanism chassis assembly (Top side)

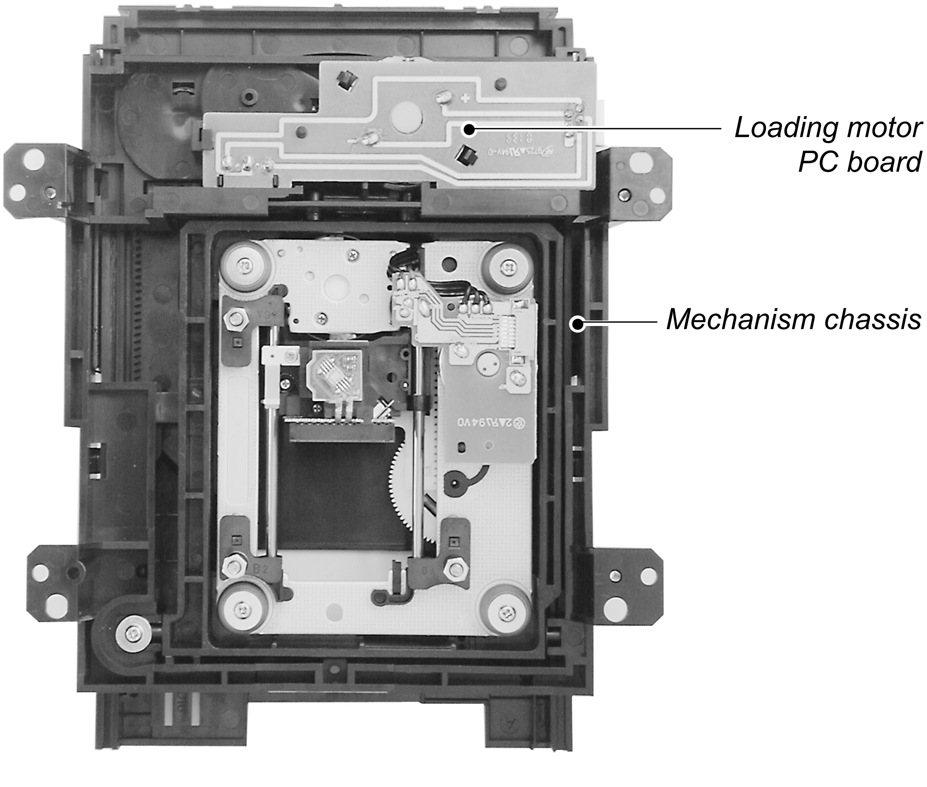

Loading motor PC board
Mechanism chassis

Fig. 1-2-3 Mechanism chassis assembly (Bottom side)

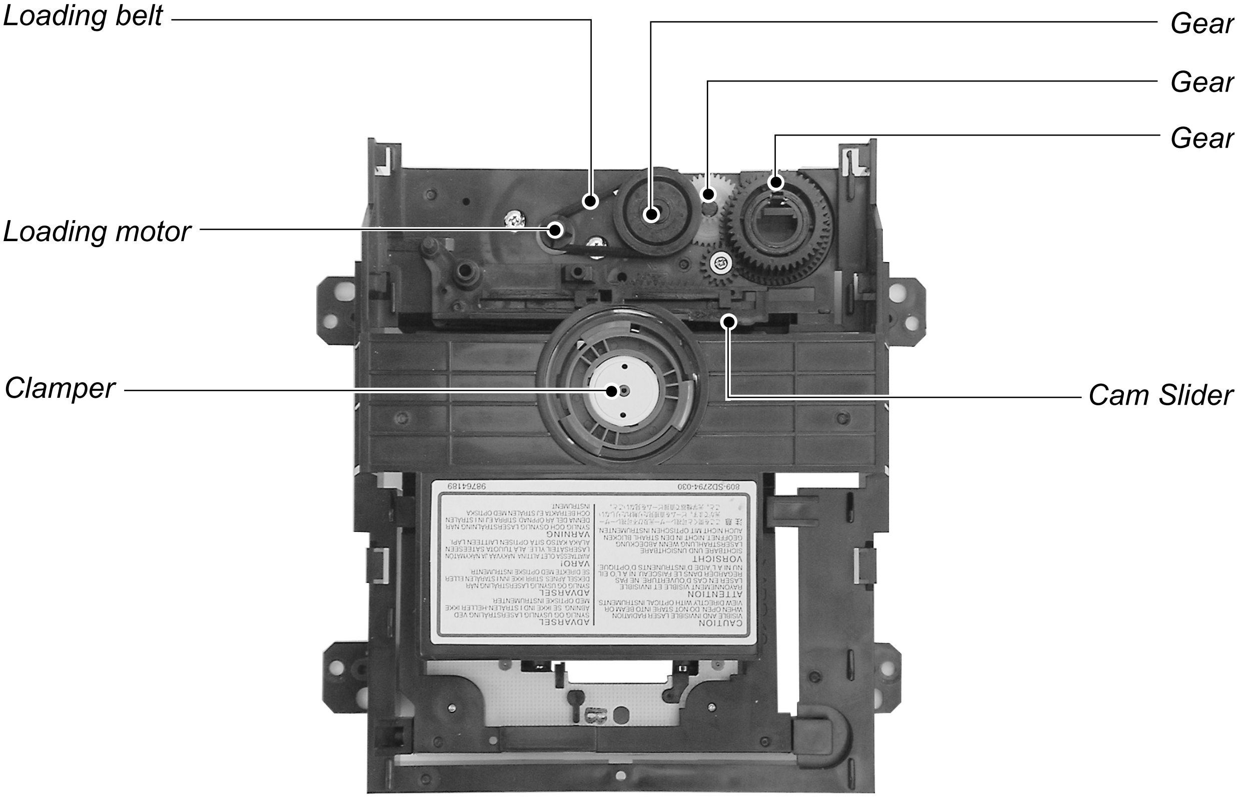

Loading belt
Gear
Gear
Gear
Loading motor
Clamper
Cam Slider

Fig. 1-2-4 Mechanism chassis assembly (Internal side)

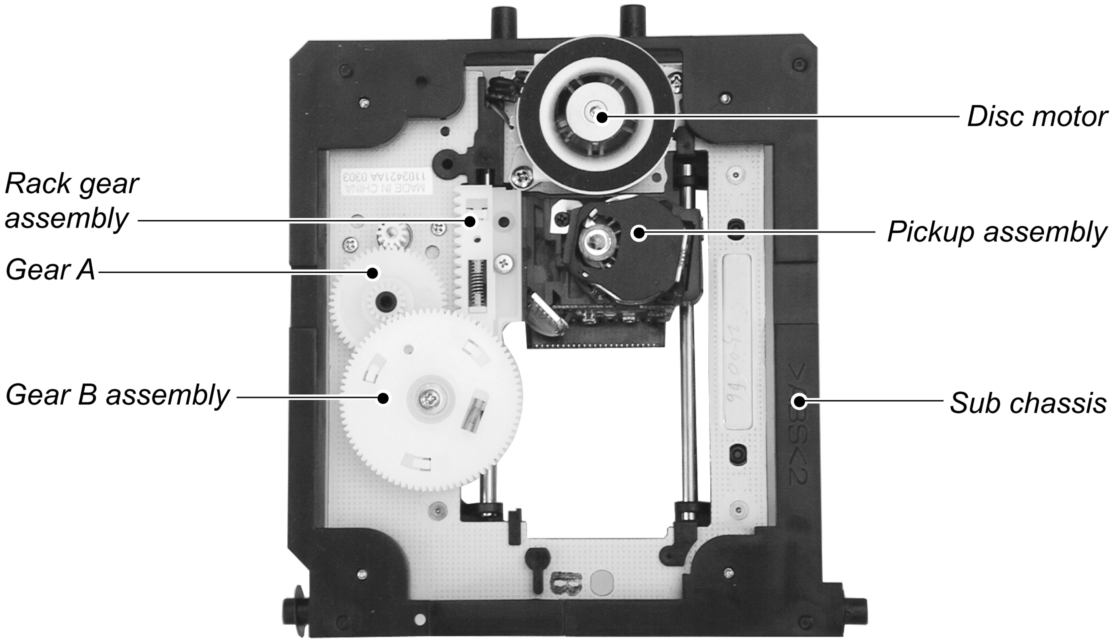

Disc motor
Rack gear assembly
Pickup assembly
Gear A
Gear B assembly
Sub chassis

Fig. 1-2-5 Pickup mechanism chassis assembly (Top side)

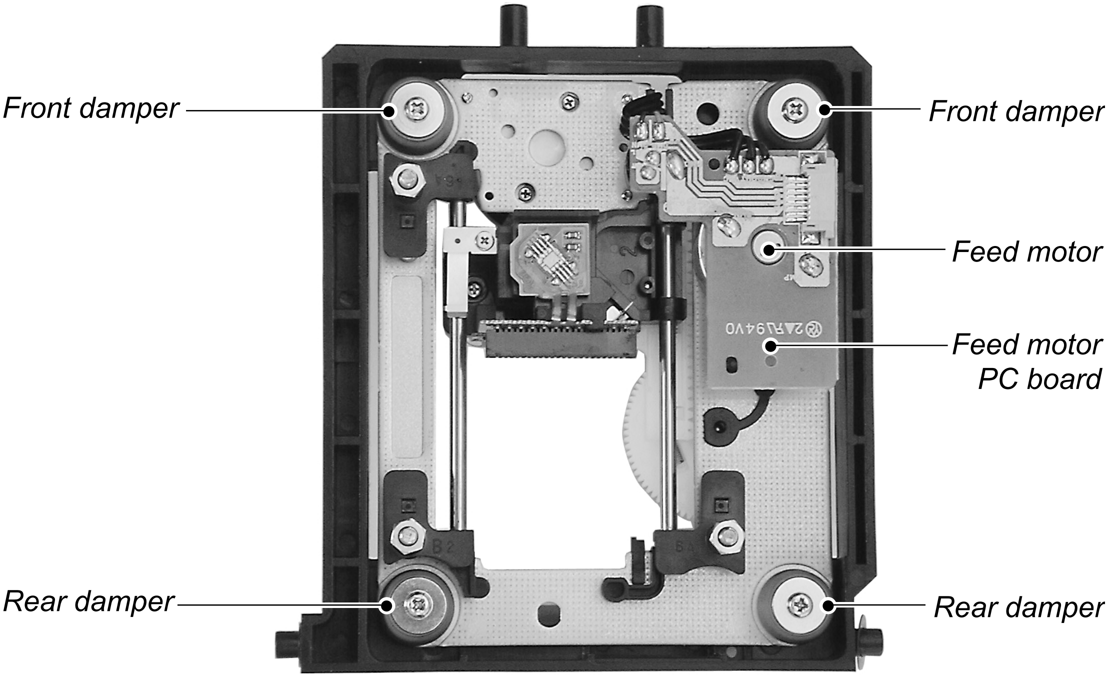

Front damper
Front damper
Feed motor
Feed motor PC board
Rear damper
Rear damper

Fig. 1-2-6 Pickup mechanism chassis assembly (Bottom side)

2-2-2. Type B

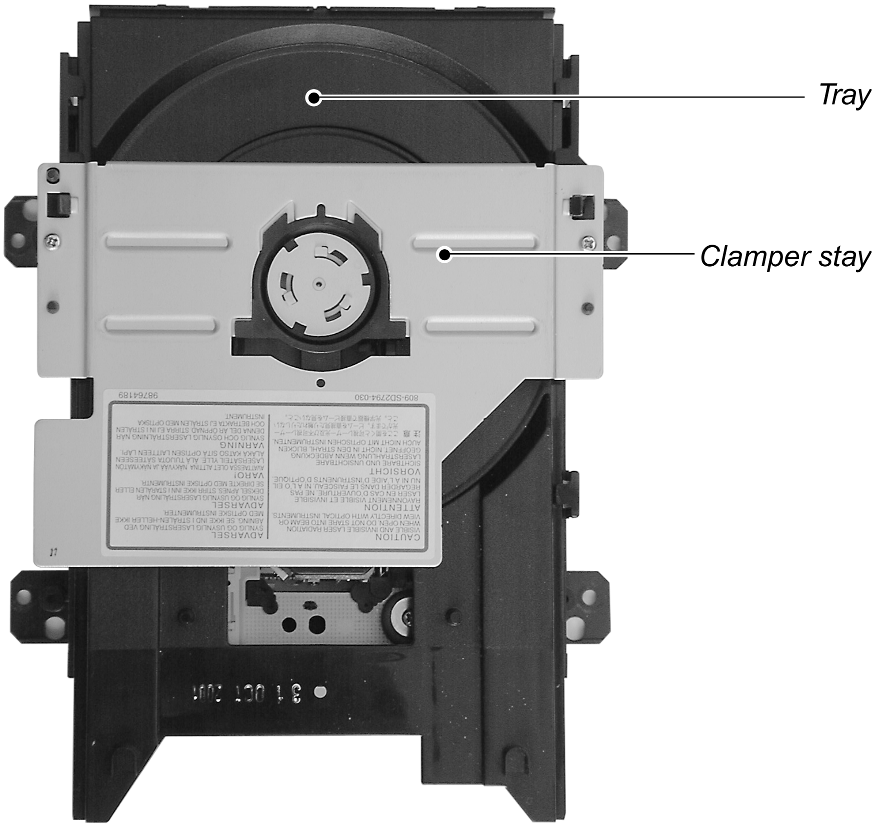

Tray
Clamper stay

Fig. 1-2-7 Mechanism chassis assembly (Top side)

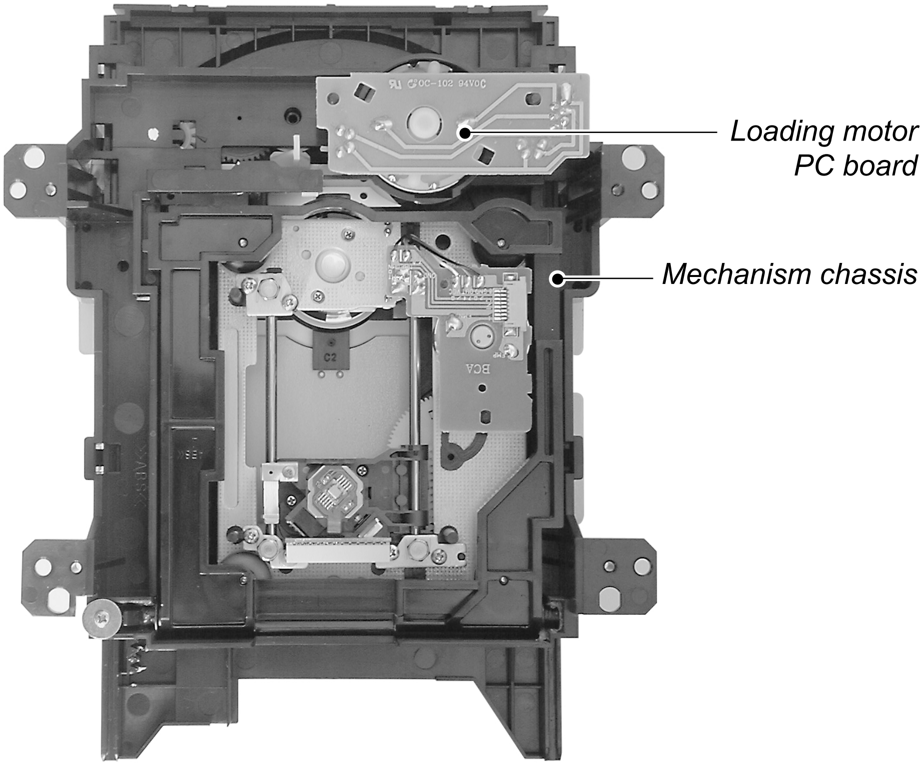

Loading motor
PC board
Mechanism chassis

Fig. 1-2-8 Mechanism chassis assembly (Bottom side)

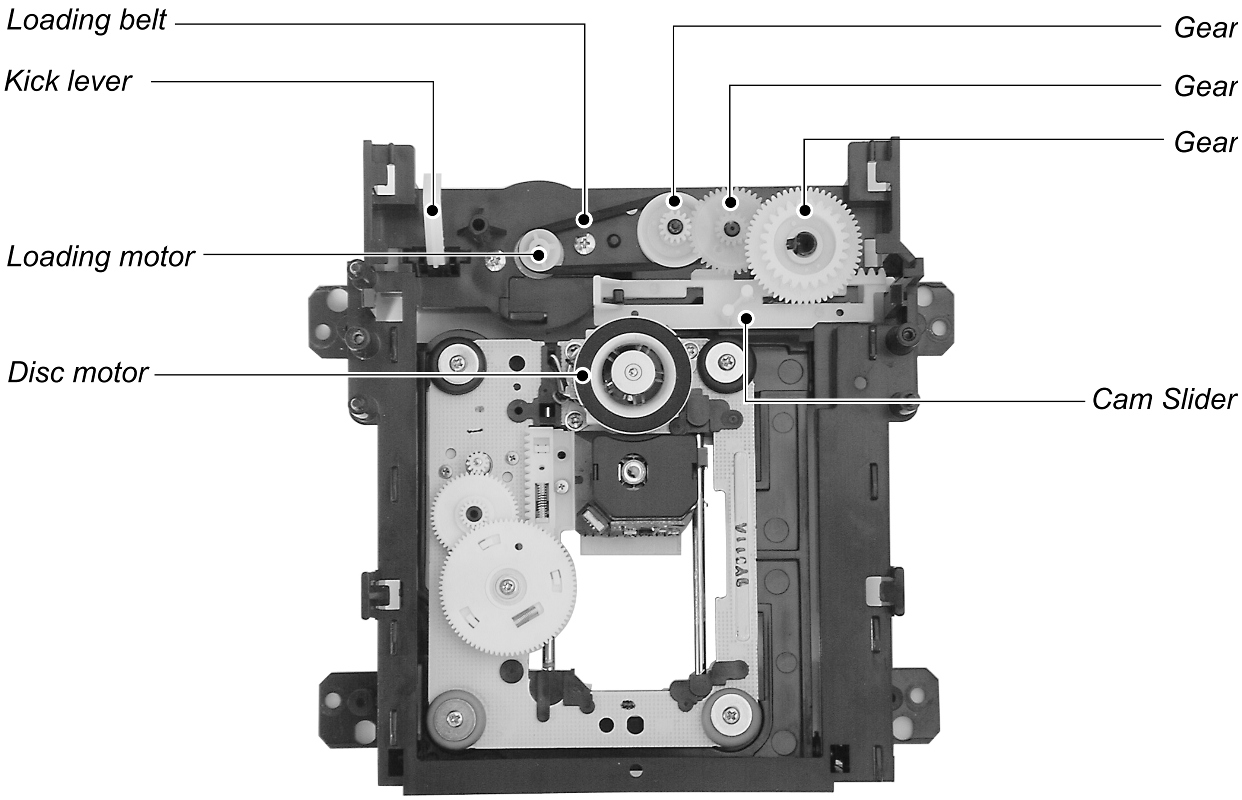

Loading belt
Kick lever
Loading motor
Disc motor
Gear
Gear
Gear
Cam Slider

Fig. 1-2-9 Mechanism chassis assembly (Internal side)

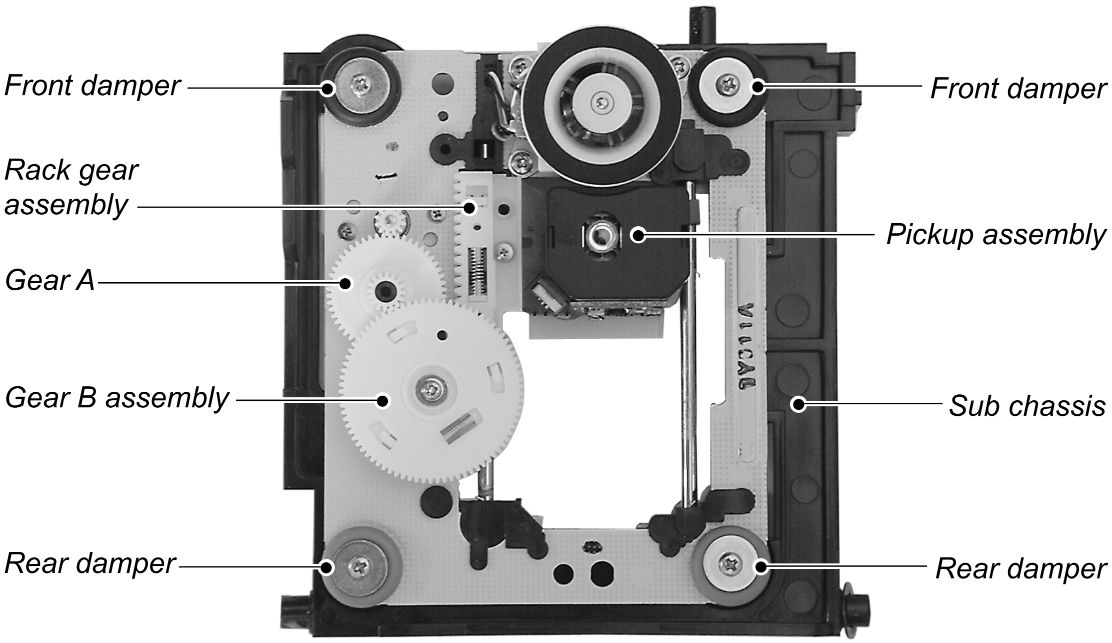

Front damper
Rack gear assembly
Gear A
Gear B assembly
Rear damper
Front damper
Pickup assembly
Sub chassis
Rear damper

Fig. 1-2-10 Pickup mechanism chassis assembly (Top side)

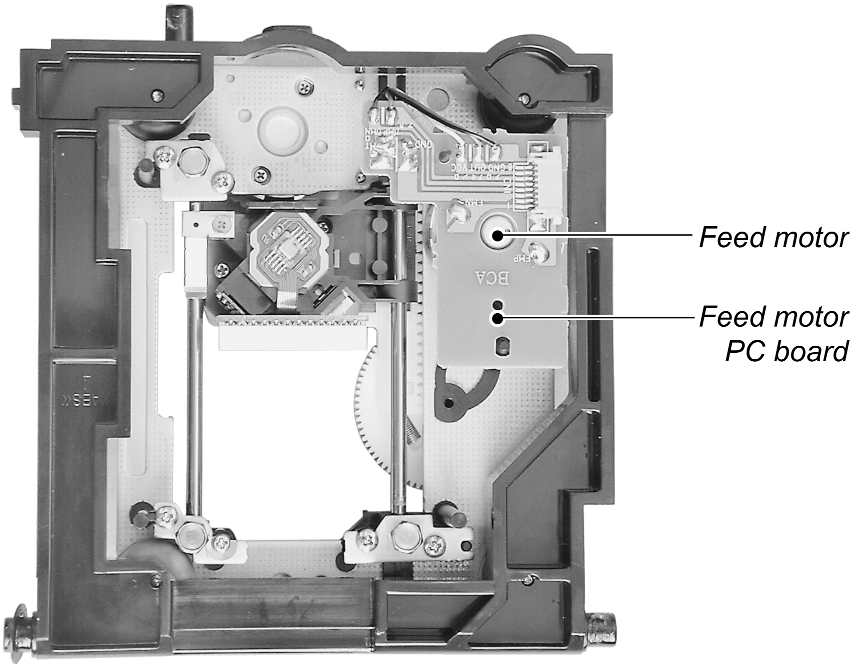

Feed motor
Feed motor PC board

Fig. 1-2-11 Pickup mechanism chassis assembly (Bottom side)

3. TROUBLESHOOTING

3-1. Main Circuit

3-1-1. Servo System

(1) Initial Operation after Power ON

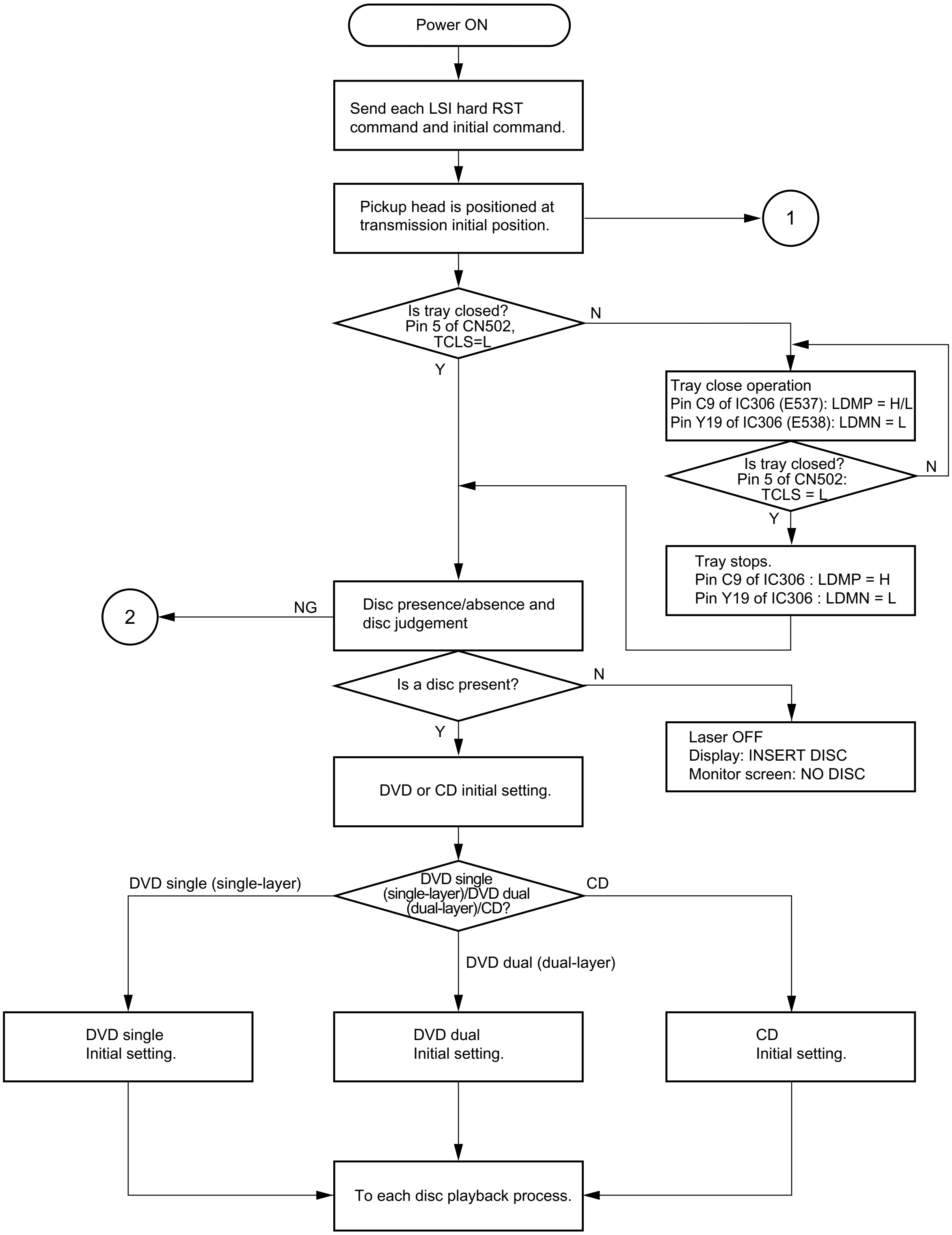
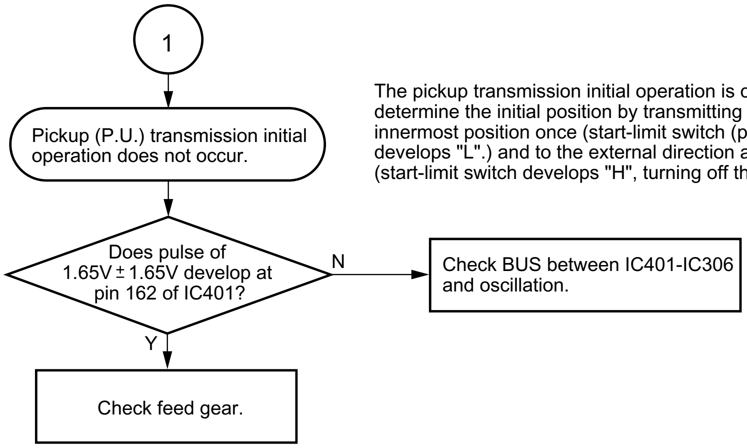

Power ON
Send each LSI hard RST command and initial command.
Pickup head is positioned at transmission initial position.
1
Is tray closed? Pin 5 of CN502, TCLS=L
N
Y
Tray close operation
Pin C9 of IC306 (E537): LDMP = H/L
Pin Y19 of IC306 (E538): LDMN = L
Is tray closed? Pin 5 of CN502: TCLS = L
N
Y
Tray stops.
Pin C9 of IC306 : LDMP = H
Pin Y19 of IC306 : LDMN = L
2
NG
Disc presence/absence and disc judgement
Is a disc present?
N
Y
Laser OFF
Display: INSERT DISC
Monitor screen: NO DISC
DVD or CD initial setting.
DVD single (single-layer)
DVD single (single-layer)/DVD dual (dual-layer)/CD?
CD
DVD dual (dual-layer)
DVD single Initial setting.
DVD dual Initial setting.
CD Initial setting.
To each disc playback process.

Fig. 1-3-1


1
Pickup (P.U.) transmission initial operation does not occur.
Does pulse of 1.65V ± 1.65V develop at pin 162 of IC401?
N
Check BUS between IC401-IC306 and oscillation.
Y
Check feed gear.

The pickup transmission initial operation is carried out to determine the initial position by transmitting the pickup to the innermost position once (start-limit switch (pin 4 of CN503) develops "L".) and to the external direction at low speed (start-limit switch develops "H", turning off the switch.).

Fig. 1-3-2

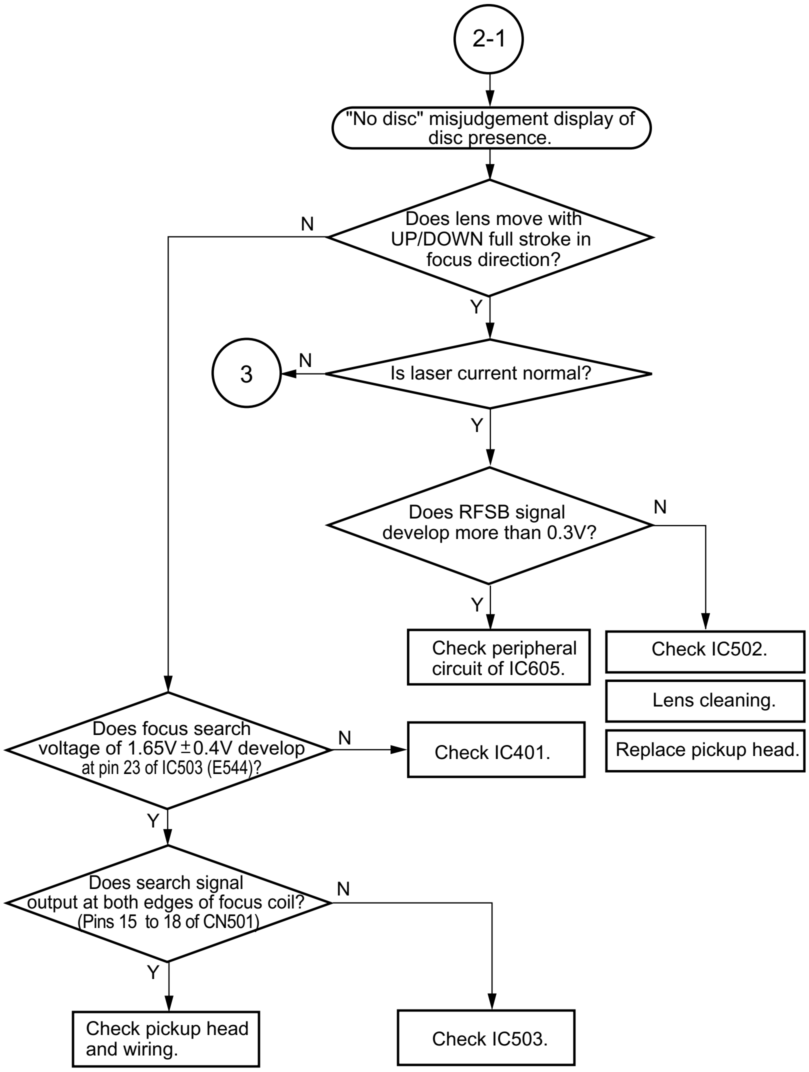

2-1
"No disc" misjudgement display of disc presence.
Does lens move with UP/DOWN full stroke in focus direction?
N
Y
3
N
Is laser current normal?
Y
Does RFSB signal develop more than 0.3V?
N
Y
Check peripheral circuit of IC605.
Check IC502.
Lens cleaning.
Replace pickup head.
Does focus search voltage of 1.65V ± 0.4V develop at pin 23 of IC503 (E544)?
N
Check IC401.
Y
Does search signal output at both edges of focus coil? (Pins 15 to 18 of CN501)
N
Y
Check pickup head and wiring.
Check IC503.

Fig. 1-3-3

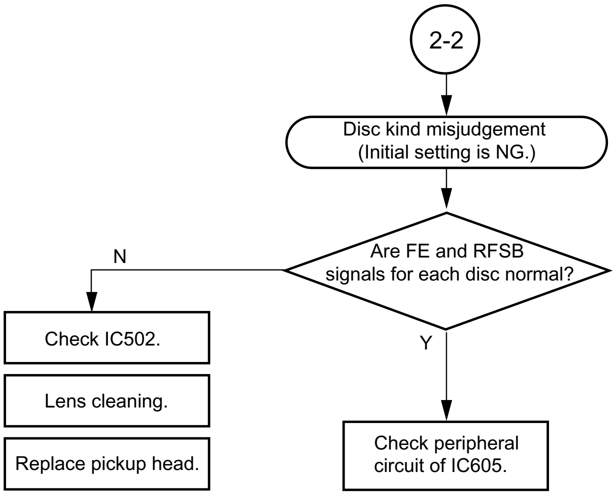
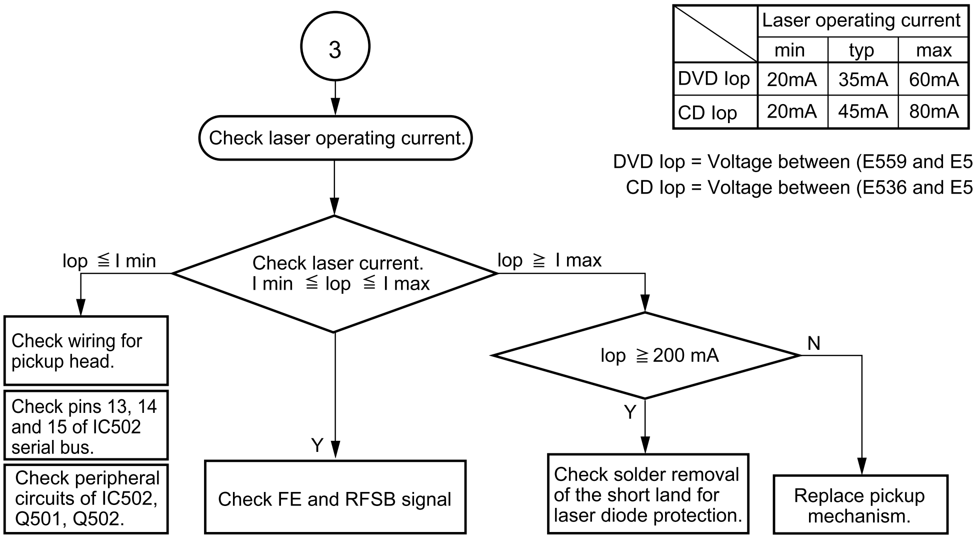

2-2
Disc kind misjudgement (Initial setting is NG.)
Are FE and RFSB signals for each disc normal?
N
Check IC502.
Lens cleaning.
Replace pickup head.
Y
Check peripheral circuit of IC605.

Fig. 1-3-4


3
Check laser operating current.
Check laser current. I min ≦ Iop ≦ I max
Iop ≦ I min
Iop ≧ I max
Check wiring for pickup head.
Check pins 13, 14 and 15 of IC502 serial bus.
Check peripheral circuits of IC502, Q501, Q502.
Y
Check FE and RFSB signal
Iop ≧ 200 mA
Y
N
Check solder removal of the short land for laser diode protection.
Replace pickup mechanism.

	Laser operating current		
	min	typ	max
DVD Iop	20mA	35mA	60mA
CD Iop	20mA	45mA	80mA

DVD Iop = Voltage between (E559 and E591) /10Ω
CD Iop = Voltage between (E536 and E591) /10Ω

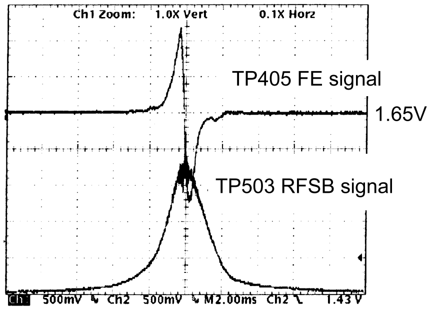
To turn on each laser diode forcibly, press the following buttons on the remote controller.
DVD LD: ZOOM, 0, 3, 0, ZOOM
CD LD: ZOOM, 0, 3, 1, ZOOM
After checked the laser current, press POWER or OPEN/CLOSE button to turn it off.

CAUTION

- The laser ray emitting out from the pickup head is very harmful to your eyes. Keep your eyes from the objective lens at least 300mm distance during the pickup head operating.
- When you perform solder removal work, please turn OFF a set power supply and perform the ground of human body and a tool.

Fig. 1-3-5

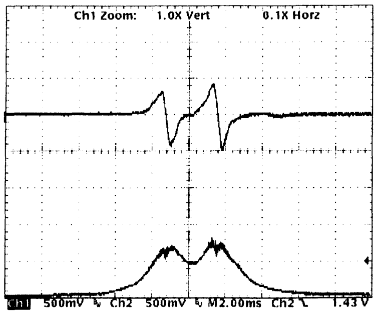
DVD single (single-layer) disc detection waveform



V : 500 mV/div
H : 2 ms/div

Fig. 1-3-6

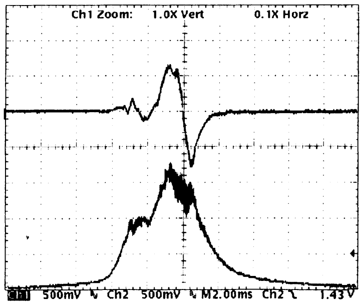
DVD dual (dual-layer) disc detection waveform



V : 500 mV/div
H : 2 ms/div

Fig. 1-3-7

CD disc detection waveform



V : 500 mV/div
H : 2 ms/div

Fig. 1-3-8

(2) Picture appears (PLAY)

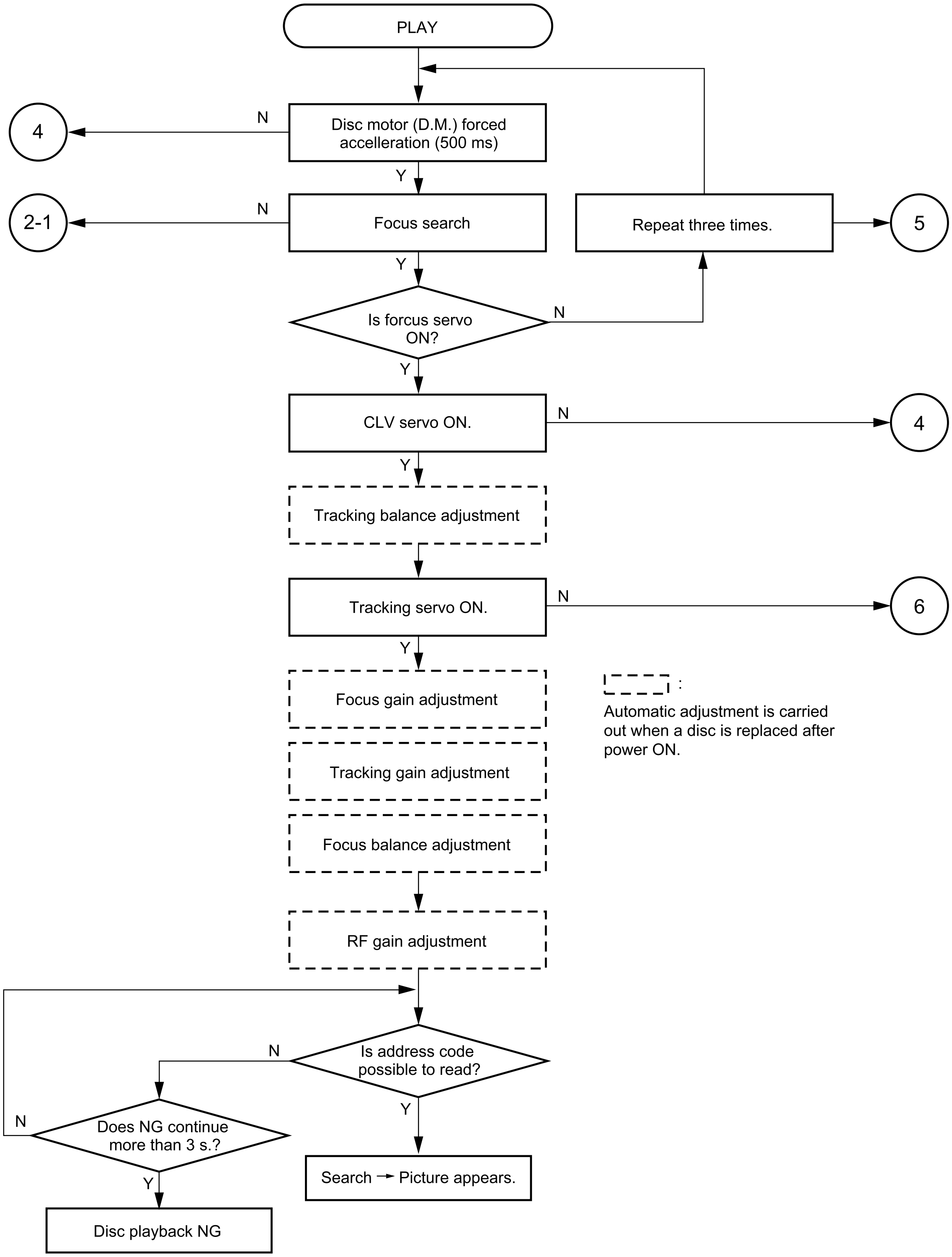

PLAY
Disc motor (D.M.) forced accelleration (500 ms)
N
4
Y
Focus search
N
2-1
Y
Is forcus servo ON?
N
Repeat three times.
5
Y
CLV servo ON.
N
4
Y
Tracking balance adjustment
Tracking servo ON.
N
6
Y
Focus gain adjustment
Tracking gain adjustment
Focus balance adjustment
RF gain adjustment
:
Automatic adjustment is carried out when a disc is replaced after power ON.
Is address code possible to read?
N
Y
Search → Picture appears.
Does NG continue more than 3 s.?
N
Y
Disc playback NG

Fig. 1-3-9

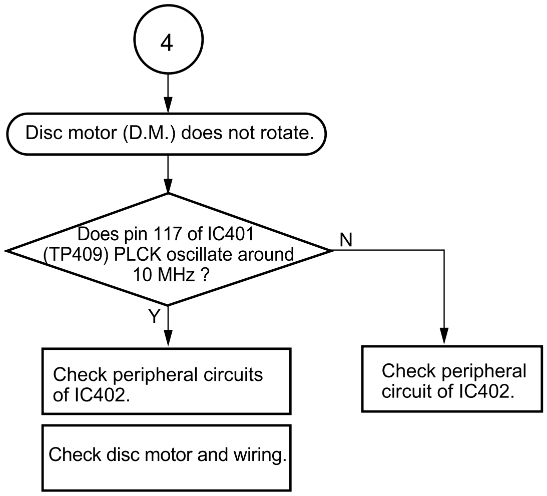

4
Disc motor (D.M.) does not rotate.
Does pin 117 of IC401 (TP409) PLCK oscillate around 10 MHz ?
N
Y
Check peripheral circuits of IC402.
Check disc motor and wiring.
Check peripheral circuit of IC402.

Fig. 1-3-10

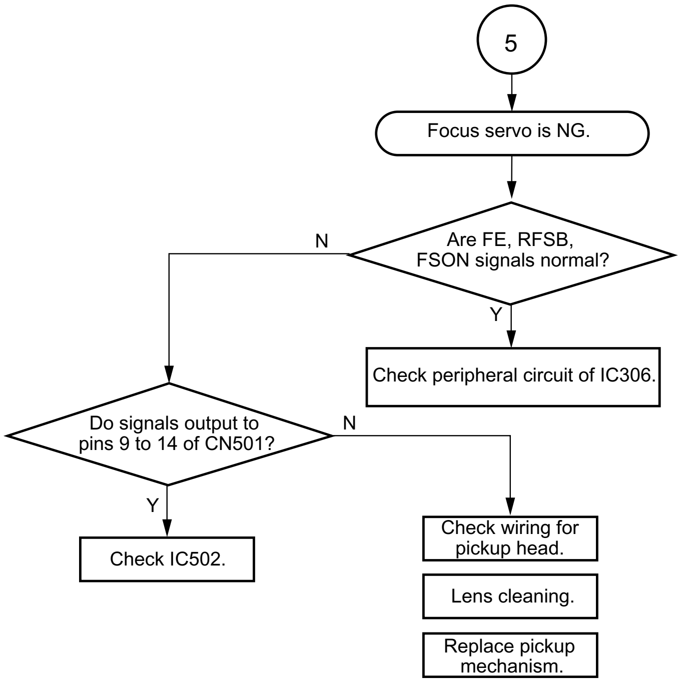

5
Focus servo is NG.
Are FE, RFSB, FSON signals normal?
N
Y
Check peripheral circuit of IC306.
Do signals output to pins 9 to 14 of CN501?
N
Y
Check IC502.
Check wiring for pickup head.
Lens cleaning.
Replace pickup mechanism.

Fig. 1-3-11

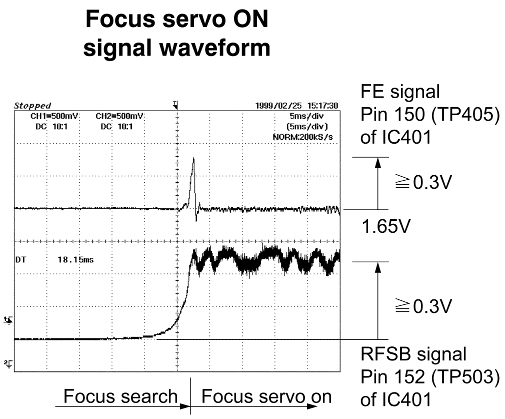


Fig. 1-3-12

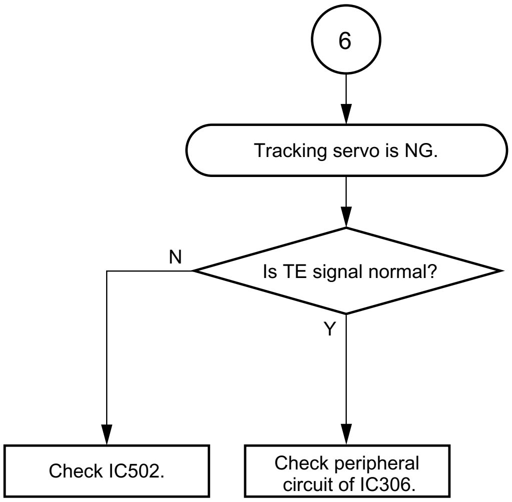
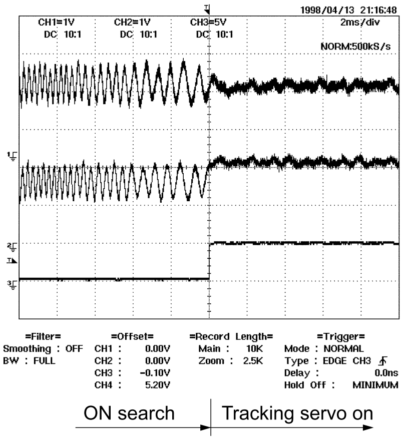

6
Tracking servo is NG.
Is TE signal normal?
N
Y
Check IC502.
Check peripheral circuit of IC306.

Fig. 1-3-13

Signal waveform at tracking servo ON (CD)



TE signal
Pin 151 (TP406) of IC401

1.65V

RFRP signal
Pin 153 (TP408) of IC401

Search ON (SRCH)
Pin 38 (TP411) of IC401

Fig. 1-3-14

Signal waveform at tracking servo ON (DVD)

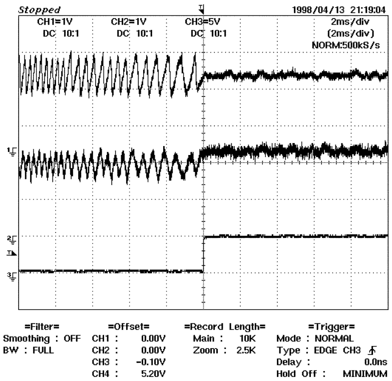


Fig. 1-3-15

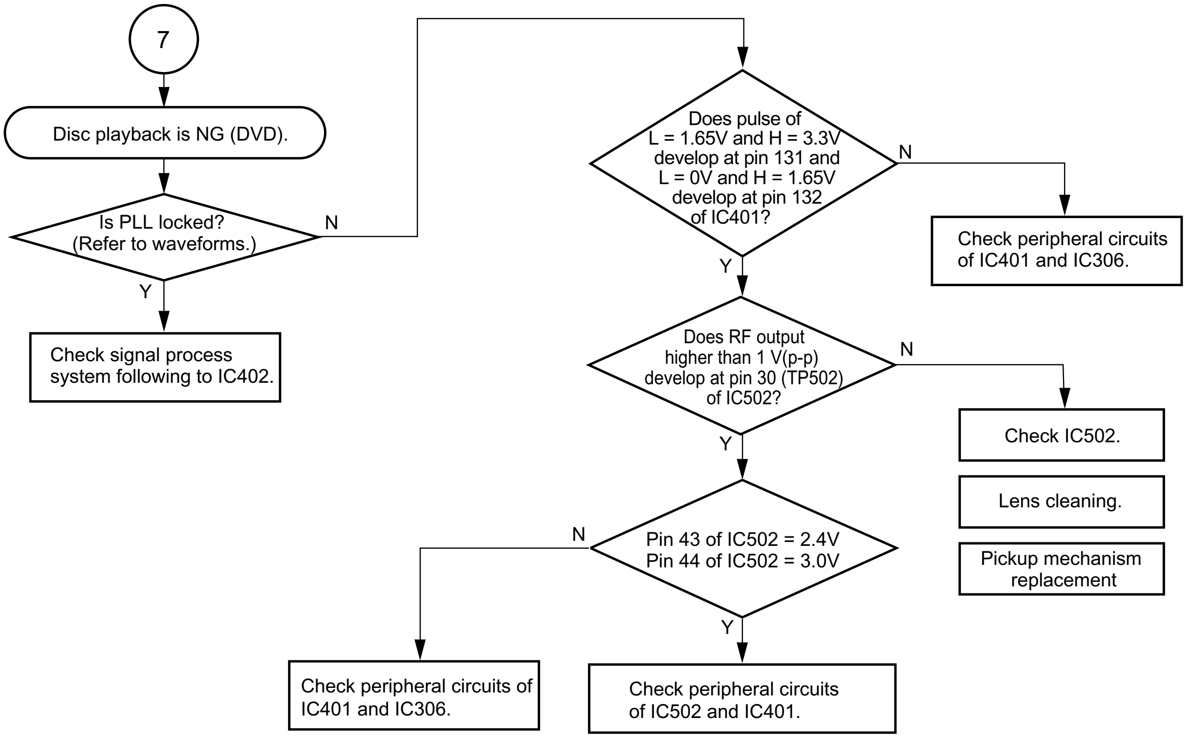
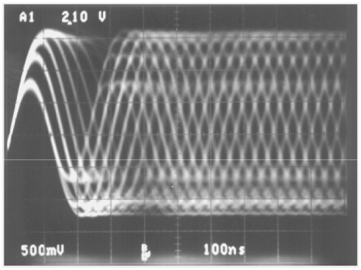

7
Disc playback is NG (DVD).
Is PLL locked?
(Refer to waveforms.)
N
Y
Check signal process system following to IC402.
Does pulse of L = 1.65V and H = 3.3V develop at pin 131 and L = 0V and H = 1.65V develop at pin 132 of IC401?
N
Check peripheral circuits of IC401 and IC306.
Y
Does RF output higher than 1 V(p-p) develop at pin 30 (TP502) of IC502?
N
Check IC502.
Lens cleaning.
Pickup mechanism replacement
Y
Pin 43 of IC502 = 2.4V
Pin 44 of IC502 = 3.0V
N
Check peripheral circuits of IC401 and IC306.
Y
Check peripheral circuits of IC502 and IC401.

Fig. 1-3-16

PLL works as a servo loop to generate a clock signal for reading RF signal binary data. With the PLL locked, the eye pattern is identified clearly when triggered with the read clock PLCK.

DVD RF signal

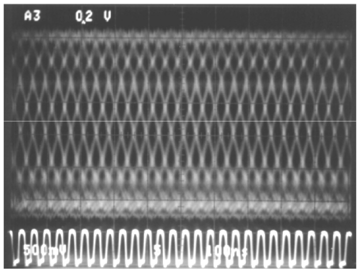


DVD RF signal
Pin 30 (TP502) of IC502

V : 500 mV/div
H : 50 ns/div

Fig. 1-3-17

DVD playback waveform



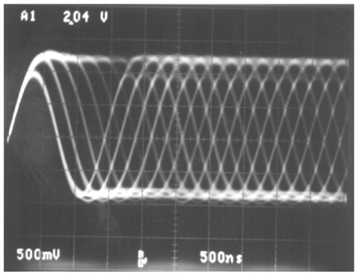
DVD RF signal
Pin 30 (TP502) of IC502

DVD PLCK
Pin 117 (TP409) of IC401

CH1 : TP502 DVDRF 500 mV/div
CH2 : TP409 DVDPLCK 5 V/div
50 ns/div

Fig. 1-3-19

CD RF signal

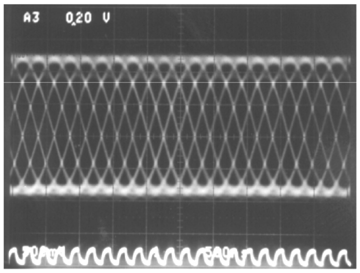


CD RF signal
Pin 30 (TP502) of IC502

V : 500 mV/div
H : 100 ns/div

Fig. 1-3-18

CD playback waveform



CD RF signal
Pin 30 (TP502) of IC502

CD PLCK
Pin 117 (TP409) of IC401

CH1 : TP502 CDRF 500 mV/div
CH2 : TP409 CDPLCK 5 V/div
100 ns/div

Fig. 1-3-20

3-1-2. Location Diagram of Servo Test Point

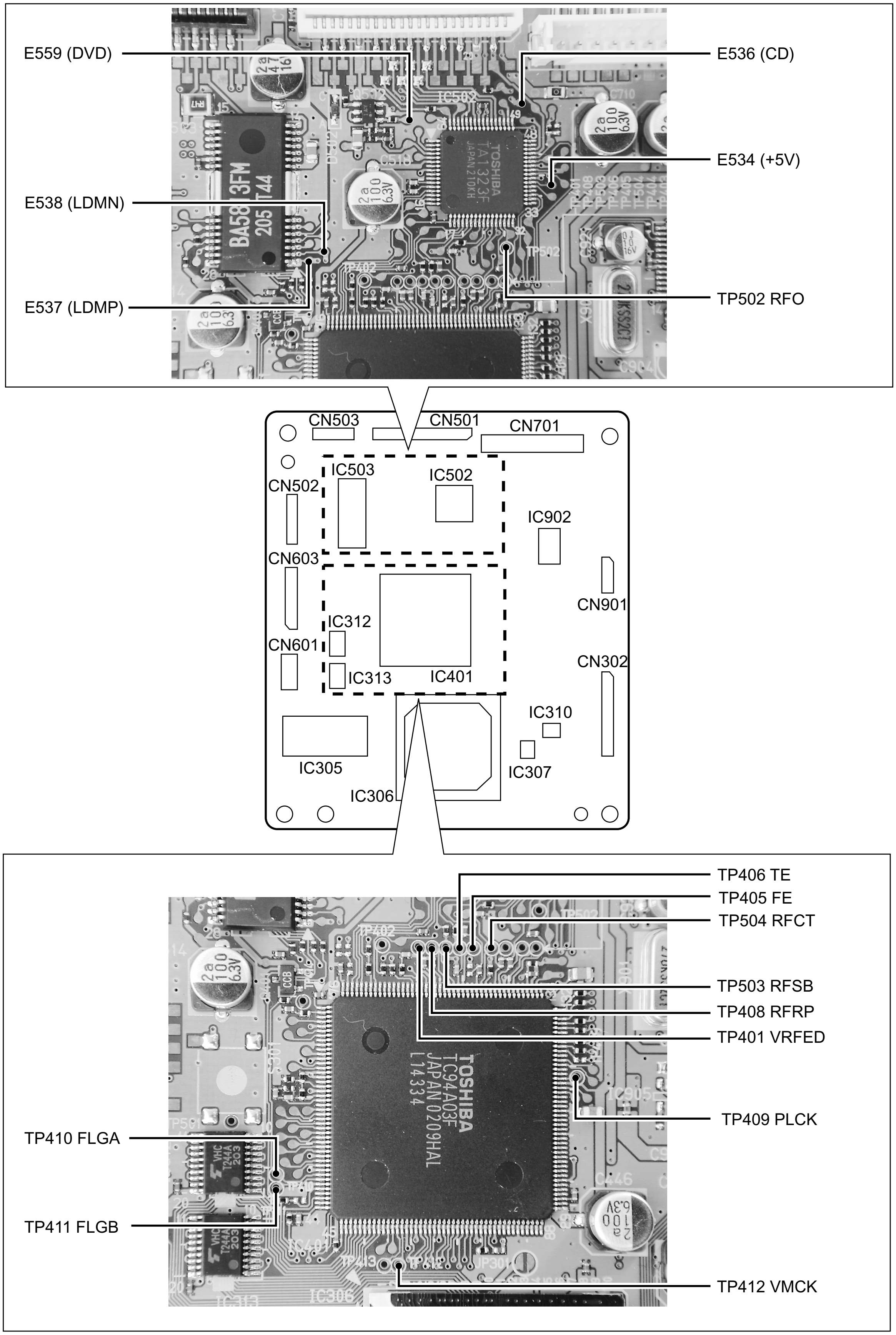

E559 (DVD)
E536 (CD)
E534 (+5V)
E538 (LDMN)
E537 (LDMP)
TP502 RFO
CN503
CN501
CN701
IC503
IC502
CN502
IC902
CN603
CN901
IC312
CN601
IC313
IC401
CN302
IC310
IC305
IC307
IC306
TP406 TE
TP405 FE
TP504 RFCT
TP503 RFSB
TP408 RFRP
TP401 VRFED
TP409 PLCK
TP410 FLGA
TP411 FLGB
TP412 VMCK

Fig. 1-3-21

SECTION 2
PART REPLACEMENT AND ADJUSTMENT PROCEDURES

CAUTIONS BEFORE STARTING SERVICING

Electronic parts are susceptible to static electricity and may easily damaged, so do not forget to take a proper grounding treatment as required.

Many screws are used inside the unit. To prevent missing, dropping, etc. of the screws, always use a magnetized screwdriver in servicing. Several kinds of screws are used and some of them need special cautions. That is, take care of the tapping screws securing molded parts and fine pitch screws used to secure metal parts. If they are used improperly, the screw holes will be easily damaged and the parts can not be fixed.

1. REPLACEMENT OF MECHANICAL PARTS (TYPE A)

1-1. Cabinet Replacement

1-1-1. Top Cover

1. Remove seven screws (1), then remove the top cover (2).

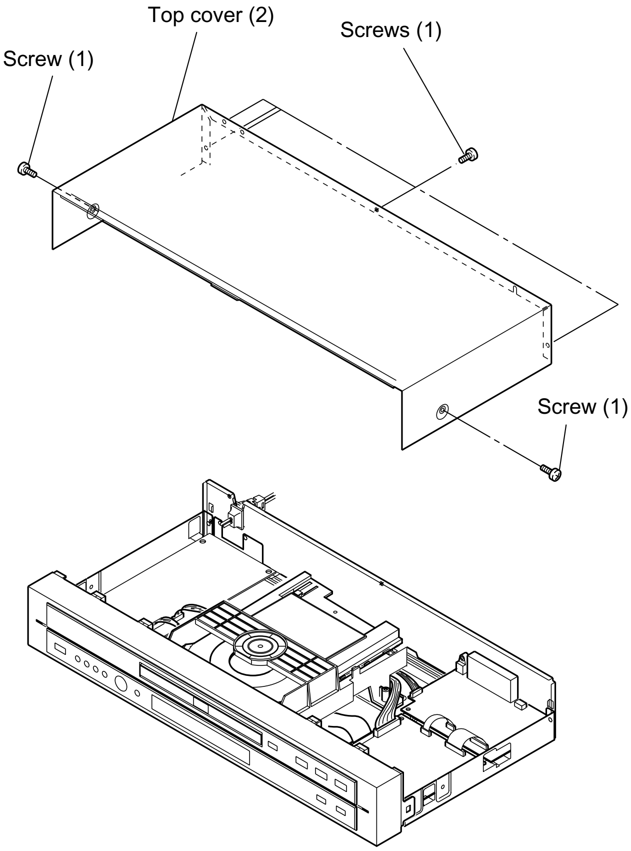

Top cover (2)
Screws (1)
Screw (1)
Screw (1)

Fig. 2-1-1

1-1-2. Tray Panel

<Tray Ejection>

1. Insert a paper clip, etc. into the hole A to eject the tray (1).

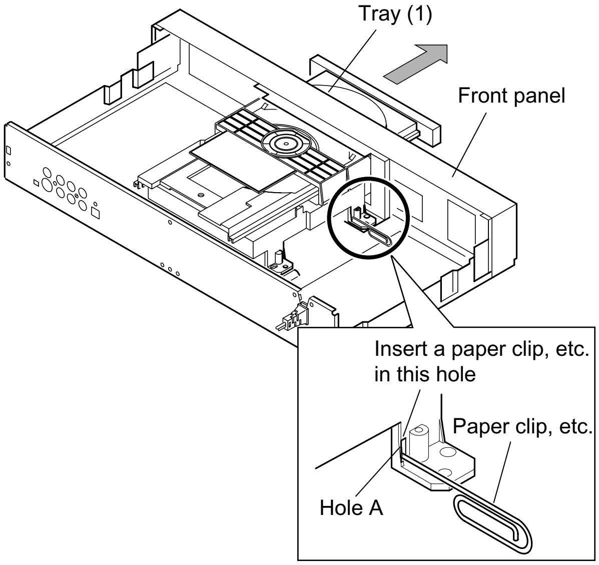

Tray (1)
Front panel
Insert a paper clip, etc. in this hole
Paper clip, etc.
Hole A

Fig. 2-1-2

<Tray Panel Removal>

1. Eject the tray (1). (Refer to item 1-1-2.)
2. Twist the tray panel (2) a little in the arrow A direction with the tray (1) hold by hand to release two claws and lift up the tray panel (2) in the arrow B direction, then the tray panel (2) is removed.
3. When mounting the tray panel (2), insert the tray panel (2) along the grooves of the both sides of the tray (1) until clicking.

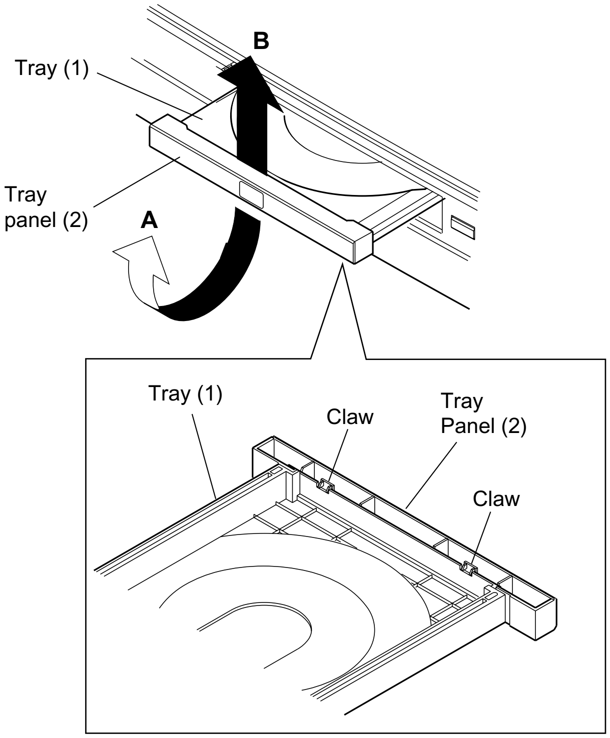

B
Tray (1)
Tray panel (2)
A
Tray (1)
Claw
Tray Panel (2)
Claw

Fig. 2-1-3

1-1-3. Front Panel

1. Remove one flexible cable (1).
2. Release four claws, then remove the front panel (2).

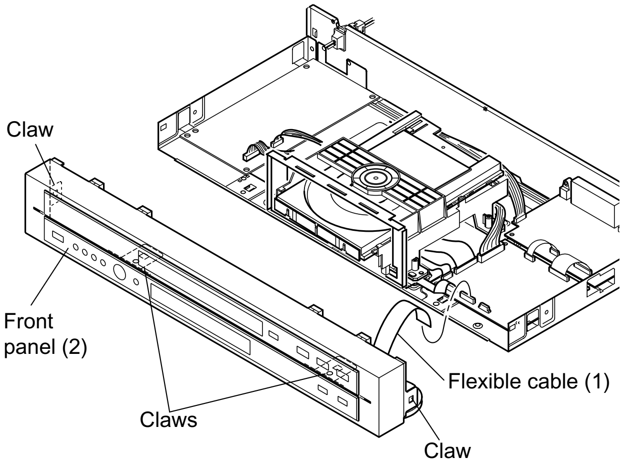

Claw
Front panel (2)
Claws
Flexible cable (1)
Claw

Fig. 2-1-4

1-1-4. Tray

1. Pull out the tray (1) towards you until it stops.
2. Lift up claw A with a minus screwdriver, and pull out the tray (1) towards you, then remove the tray (1).

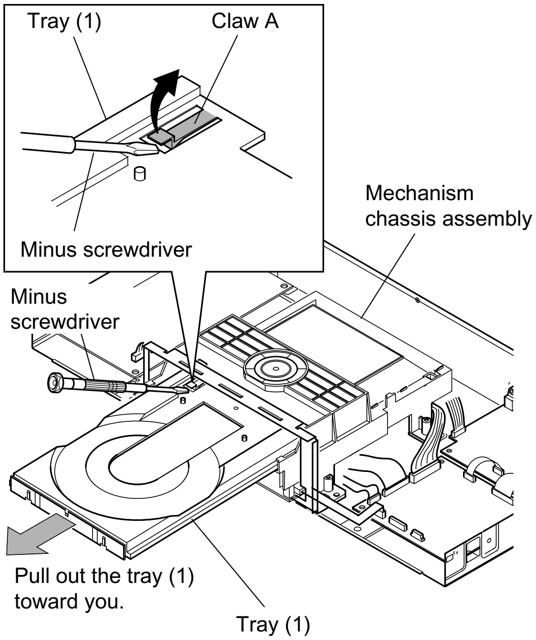

Tray (1)
Claw A
Minus screwdriver
Mechanism chassis assembly
Minus screwdriver
Pull out the tray (1) toward you.
Tray (1)

Fig. 2-1-5

1-1-5. Rear Panel

1. Remove the bush (1).
2. Remove four screws (2), then remove the rear panel (3).

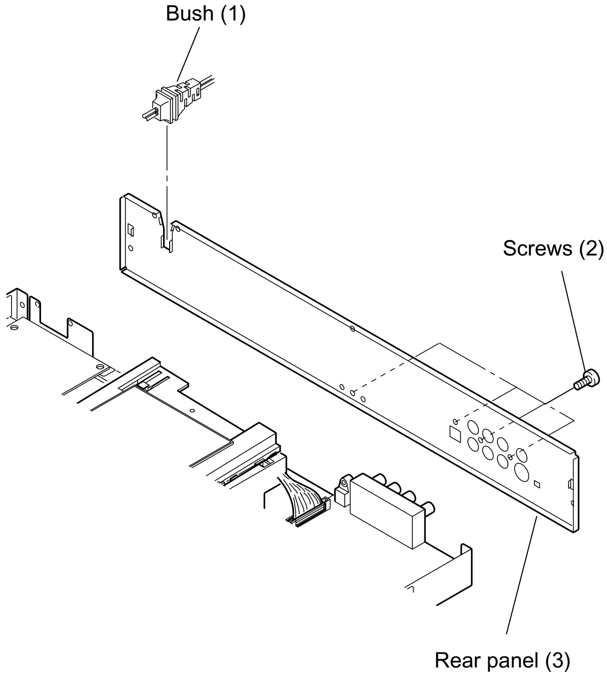

Bush (1)
Screws (2)
Rear panel (3)

Fig. 2-1-6

1-2. PC Board Replacement

1-2-1. Main PC Board

Note:

- Before removing the main PC board (4), be sure to short-circuit the laser diode output land.

  After replacing, open the land as it was after inserting the flexible cables (1).

1. Remove the top cover. (Refer to item 1-1-1.)
2. Eject the tray. (Refer to item 1-1-2.)
3. Remove six flexible cables (1) and remove one connector (2).
4. Remove four screws (3), then remove the main PC board (4).

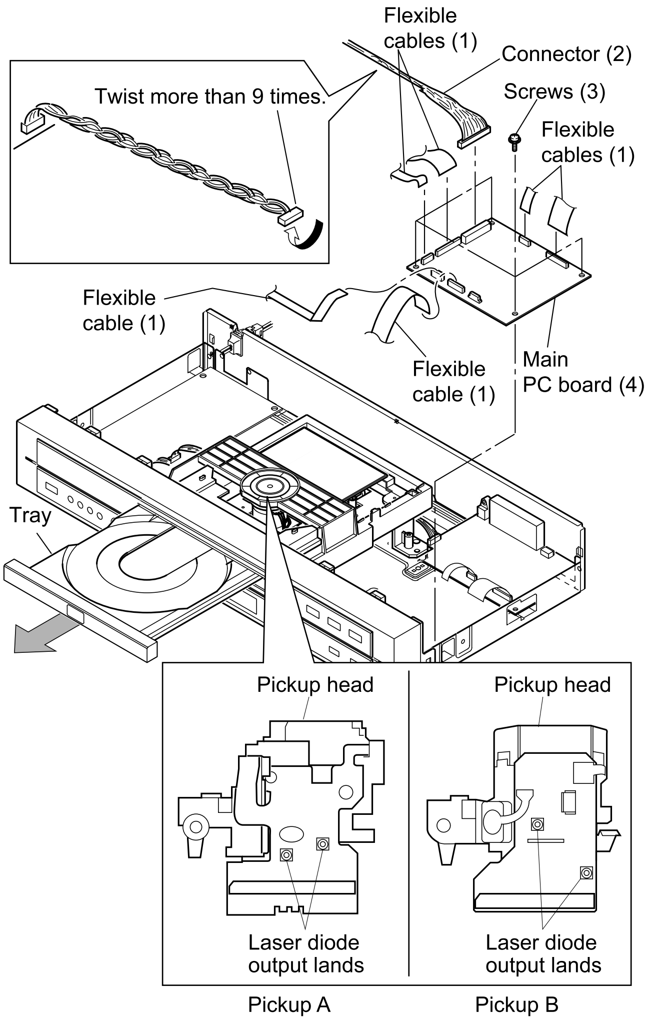

Flexible cables (1)
Connector (2)
Twist more than 9 times.
Screws (3)
Flexible cables (1)
Flexible cable (1)
Flexible cable (1)
Main PC board (4)
Tray
Pickup head
Pickup head
Laser diode output lands
Laser diode output lands
Pickup A
Pickup B

Fig. 2-1-7

1-2-2. Output PC Board

1. Remove the top cover. (Refer to item 1-1-1.)
2. Peel off two tapes (1) and remove the connector (2).
3. Remove two flexible cables (3).
4. Remove five screws (4), then remove the output PC board (5).

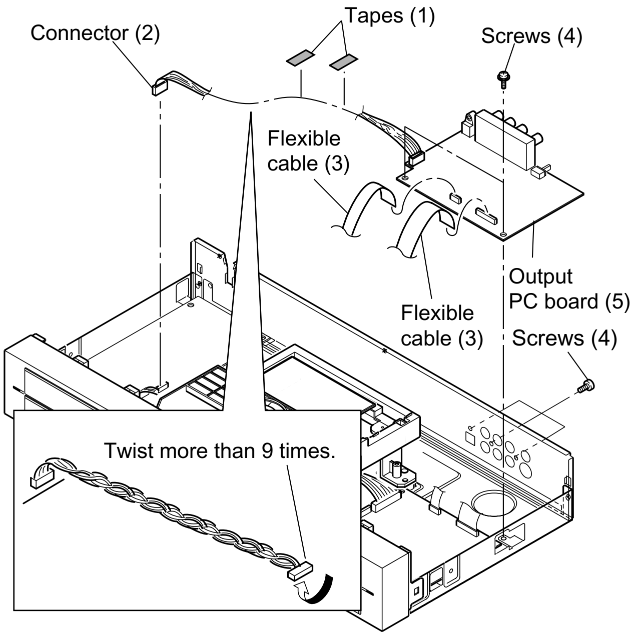

Connector (2)
Tapes (1)
Screws (4)
Flexible cable (3)
Output PC board (5)
Flexible cable (3)
Screws (4)
Twist more than 9 times.

Fig. 2-1-8

1-2-3. Power PC board

1. Remove the bush (1).
2. Peel off two tapes (2) and remove two connectors (3).
3. Remove four screws (4), then remove the power supply PC board (5).

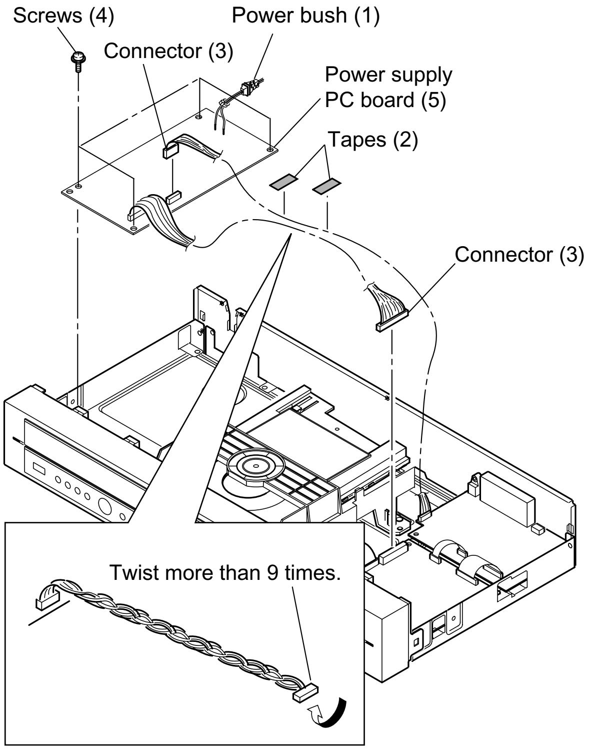

Screws (4)
Power bush (1)
Connector (3)
Power supply PC board (5)
Tapes (2)
Connector (3)
Twist more than 9 times.

Fig. 2-1-9

1-2-4. Front PC Board

1. Remove the front panel. (Refer to item 1-1-3.)
2. Remove the flexible cable (1).
3. Remove nine screws (2), then remove the front display PC board (3).
4. Remove two screws (4), then remove the power switch PC board (5).
5. Remove three screws (6), then remove the ENTER switch (7).

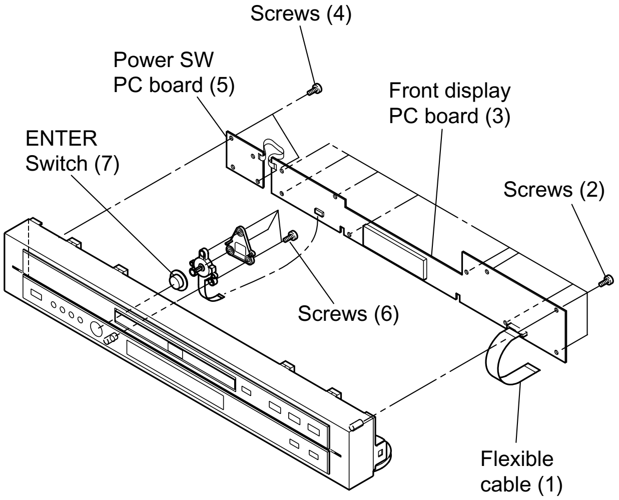

Screws (4)
Power SW PC board (5)
Front display PC board (3)
ENTER Switch (7)
Screws (2)
Screws (6)
Flexible cable (1)

Fig. 2-1-10

1-3. Mechanism Parts

1-3-1. Mechanism Chassis Assembly

Note:

- When removing the mechanism chassis assembly (3), be sure to short-circuit the laser diode output land before removing the connector and the flexible cables.

  After replacing, open the land as it was after inserting the connector and flexible cables.

1. Remove the front panel. (Refer to item 1-1-3.)
2. Remove three flexible cables (1).
3. Remove four screws (2), then remove the mechanism chassis assembly (3).

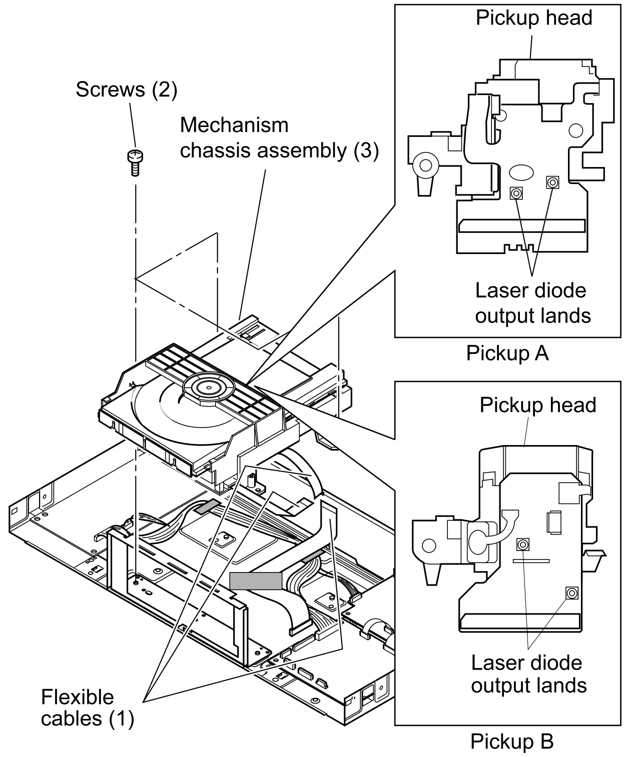

Screws (2)
Mechanism chassis assembly (3)
Pickup head
Laser diode output lands
Pickup A
Pickup head
Laser diode output lands
Pickup B
Flexible cables (1)

Fig. 2-1-11

2. REPLACEMENT OF MECHANICAL PARTS (TYPE B)

2-1. Cabinet Replacement

2-1-1. Top Cover

1. Remove seven screws (1), then remove the top cover (2).

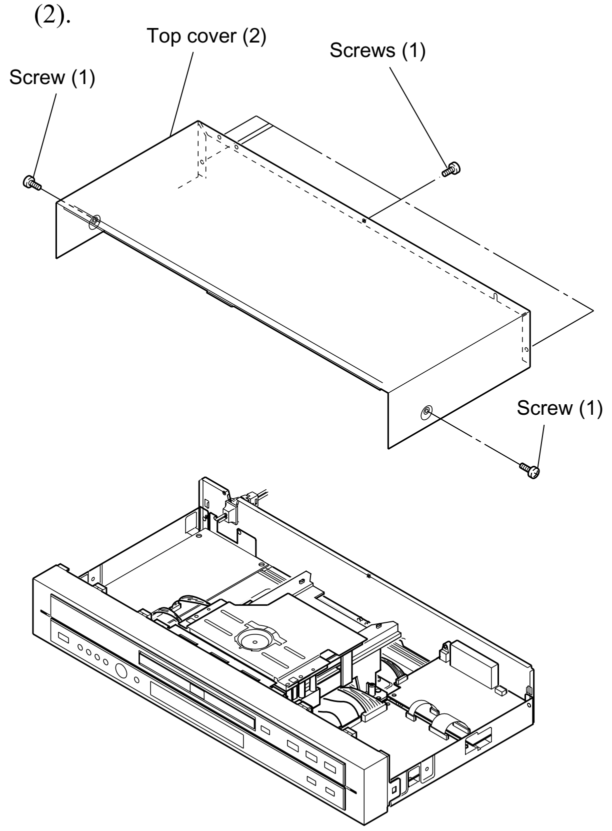

Top cover (2)
Screws (1)
Screw (1)
Screw (1)

Fig. 2-1-12

2-1-2. Clamper Stay

<Removal>

1. Remove two screws (1).
2. Release two claws and remove the clamper stay (2).

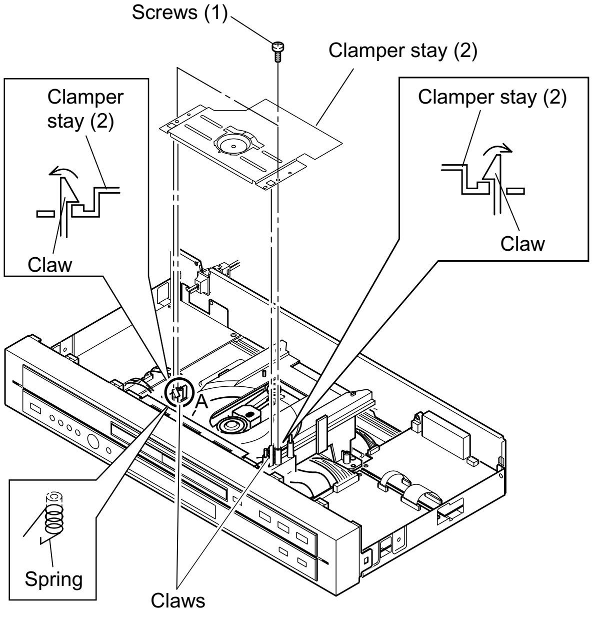

Screws (1)
Clamper stay (2)
Clamper stay (2)
Claw
Clamper stay (2)
Claw
A
Spring
Claws

Fig. 2-1-13

<Mounting >

1. The spring for tray side pressure is inserted into the portion “A”. (Refer to Fig. 2-1-13.)
2. By referring to Fig. 2-1-14, insert the spring normally and mount the clamper stay.

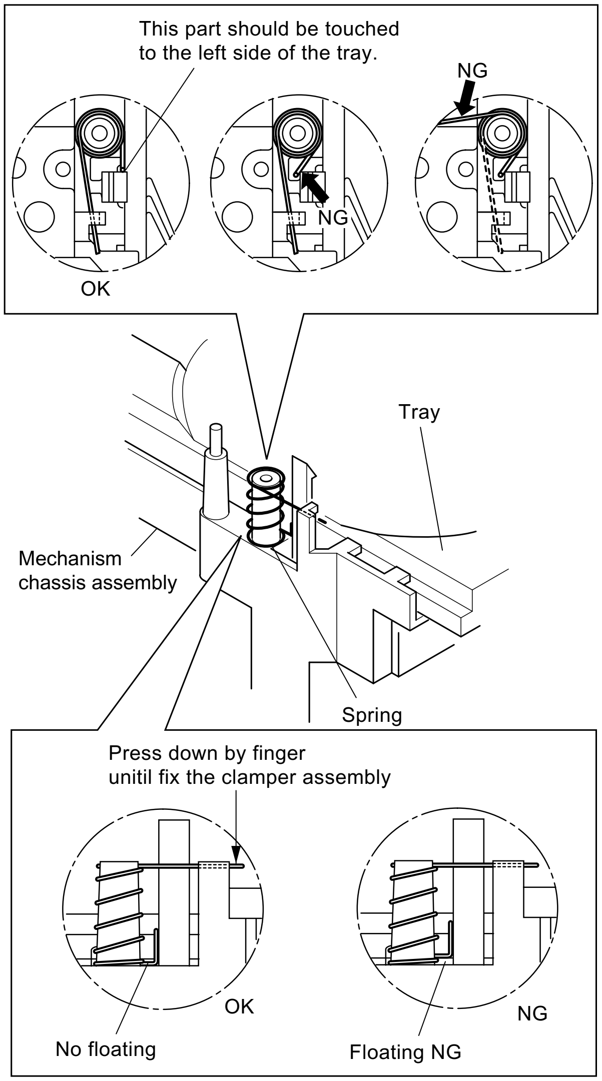

This part should be touched
to the left side of the tray.
NG
NG
OK
Tray
Mechanism
chassis assembly
Spring
Press down by finger
unitil fix the clamper assembly
OK
NG
No floating
Floating NG

Fig. 2-1-14

2-1-3. Tray Panel

<Tray Ejection>

1. Slide the slider (2) of the mechanism chassis assembly (1) with a screwdriver, etc. in the arrow direction, so that the tray (3) is ejected.

Note:

- Take care not to damage the pickup and other parts.

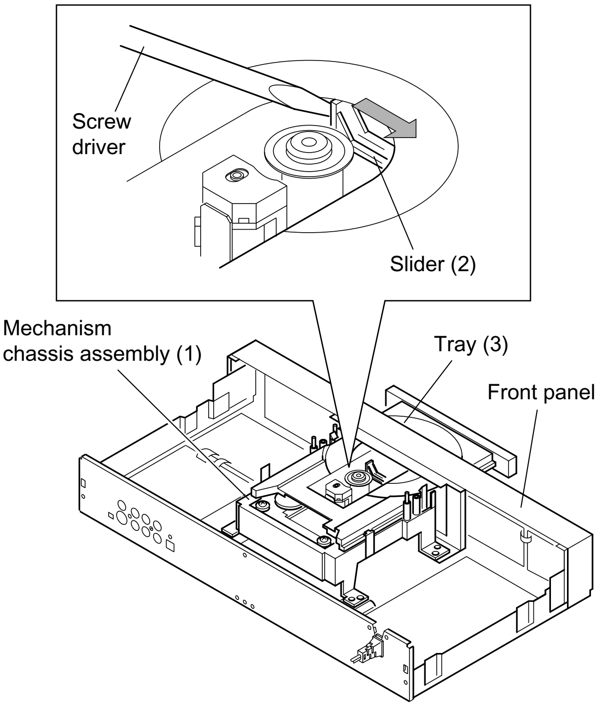

Screw driver
Slider (2)
Mechanism chassis assembly (1)
Tray (3)
Front panel

Fig. 2-1-15

<Tray Panel Removal>

1. Eject the tray (3).
2. Twist the tray panel (4) a little in the arrow A direction with the tray (3) hold by hand to release two claws and lift up the tray panel (4) in the arrow B direction, then the tray panel (4) is removed. (Refer to Fig. 2-1-16.)
3. When mounting the tray panel (4), insert the tray panel (4) along the grooves of the both sides of the tray (3) until clicking.

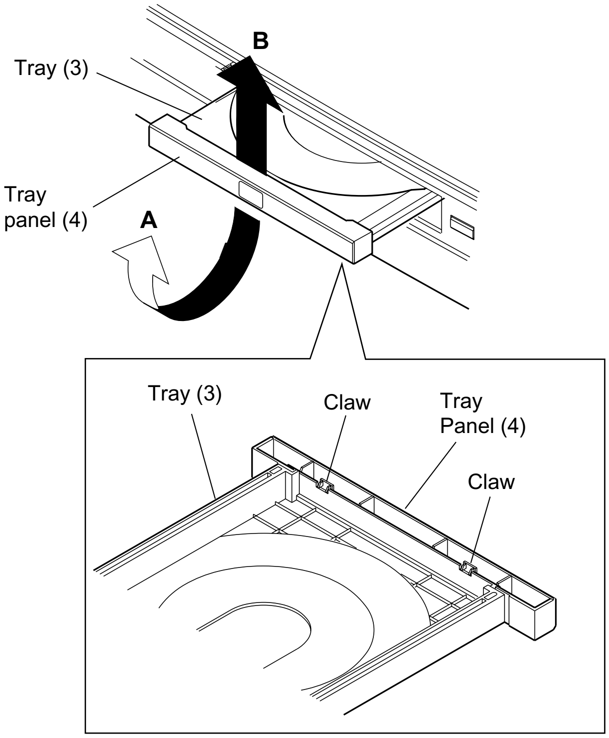

B
Tray (3)
Tray panel (4)
A
Tray (3)
Claw
Tray Panel (4)
Claw

Fig. 2-1-16

2-1-4. Front Panel and Tray

1. Remove the flexible cable (1).
2. Release four claws and remove the front panel (2).
3. Pull out the tray (3) towards you.

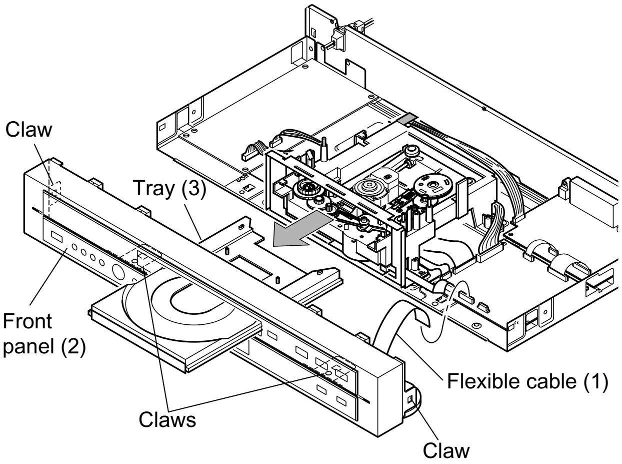

Claw
Tray (3)
Front panel (2)
Claws
Flexible cable (1)
Claw

Fig. 2-1-17

Note:

- Insert the tray (3) with the front side of the pickup mechanism assembly descended. (The slider positions to the left side.)
- The gears are required to match their phases each other. After setting the gear (4) as shown in the figure “A”, insert the tray (3). When inserting a tray (3), push the rack gear side shown by the arrow.

- Confirm that the mark of the gear matches with the triangle mark on the reverse side of the tray in the tray close status. (The gear is rotated with the slider locks.) (Refer to Fig. B.)

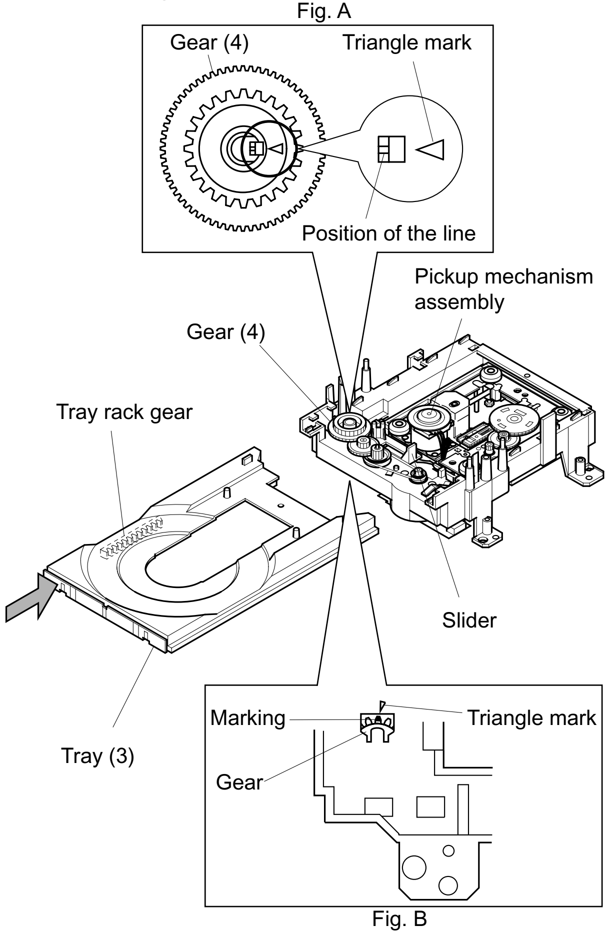


Fig. A
Gear (4)
Triangle mark
Position of the line
Pickup mechanism assembly
Gear (4)
Tray rack gear
Slider
Tray (3)
Marking
Triangle mark
Gear
Fig. B

Fig. 2-1-18

2-1-5. Rear Panel

1. Remove the bush (1).
2. Remove four screws (2), then remove the rear panel (3).

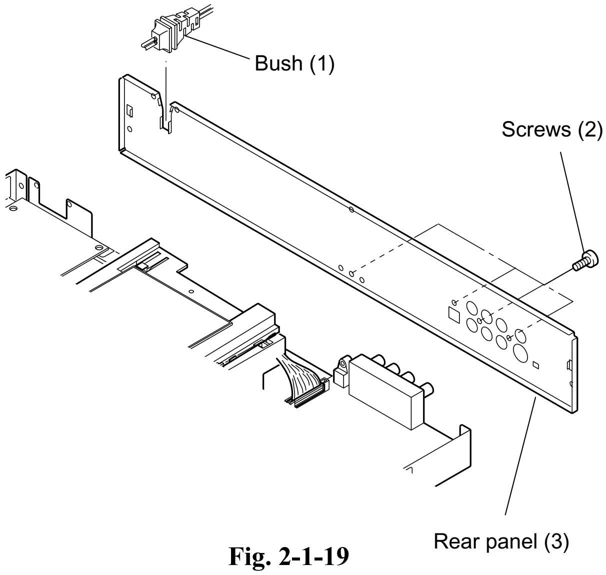

Bush (1)
Screws (2)
Rear panel (3)

Fig. 2-1-19

2-2. PC Board Replacement

2-2-1. Main PC Board

Note:

- Before removing the main PC board (4), be sure to short-circuit the laser diode output land.

  After replacing, open the land as it was after inserting the flexible cables (1).

1. Remove the top cover. (Refer to item 2-1-1.)
2. Eject the tray. (Refer to item 2-1-3.)
3. Remove six flexible cables (1) and remove one connector (2).
4. Remove four screws (3), then remove the main PC board (4).

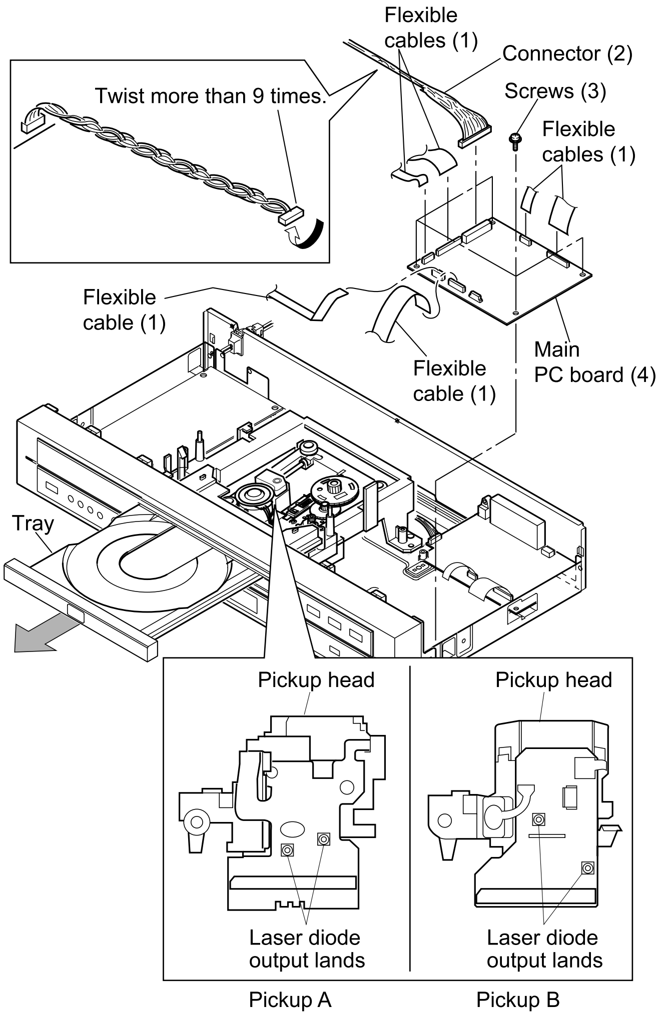

Flexible cables (1)
Connector (2)
Twist more than 9 times.
Screws (3)
Flexible cables (1)
Flexible cable (1)
Flexible cable (1)
Main PC board (4)
Tray
Pickup head
Pickup head
Laser diode output lands
Laser diode output lands
Pickup A
Pickup B

Fig. 2-1-20

2-2-2. Output PC Board

1. Remove the top cover. (Refer to item 2-1-1.)
2. Peel off two tapes (1) and remove the connector (2).
3. Remove two flexible cables (3).
4. Remove five screws (4), then remove the output PC board (5).

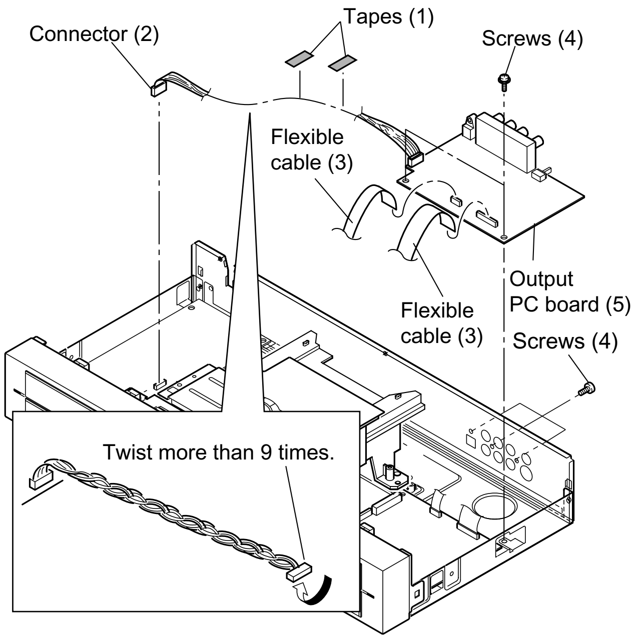

Connector (2)
Tapes (1)
Screws (4)
Flexible cable (3)
Flexible cable (3)
Output PC board (5)
Screws (4)
Twist more than 9 times.

Fig. 2-1-21

2-2-3. Power PC board

1. Remove the power bush (1).
2. Peel off two tapes (2) and remove two connectors (3).
3. Remove four screws (4), then remove the power supply PC board (5).

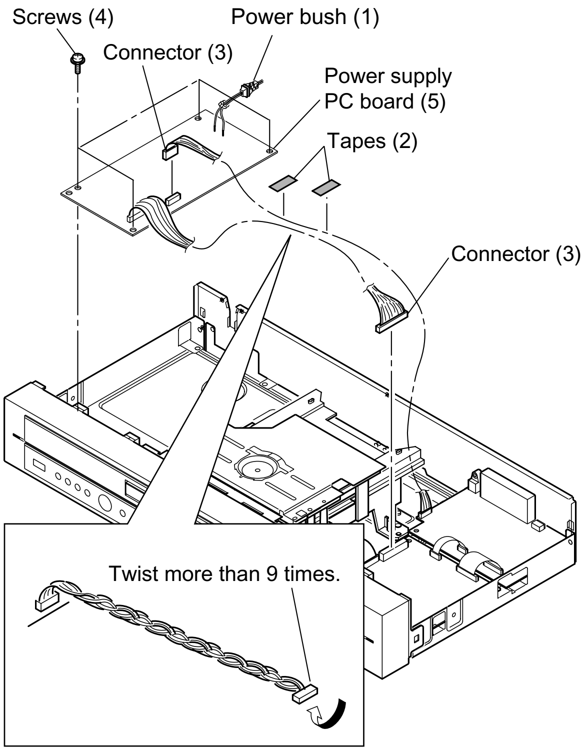

Screws (4)
Power bush (1)
Connector (3)
Power supply PC board (5)
Tapes (2)
Connector (3)
Twist more than 9 times.

Fig. 2-1-22

2-2-4. Front PC Board

1. Remove the front panel. (Refer to item 2-1-4.)
2. Remove the flexible cable (1).
3. Remove six screws (2), then remove the front display PC board (3).
4. Remove two screws (4), then remove the power switch PC board (5).
5. Remove three screws (6), then remove the ENTER switch (7).

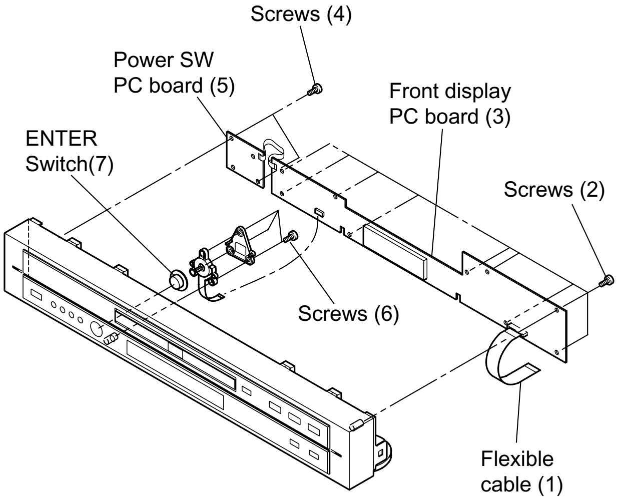

Screws (4)
Power SW PC board (5)
Front display PC board (3)
ENTER Switch(7)
Screws (2)
Screws (6)
Flexible cable (1)

Fig. 2-1-23

2-3. Mechanism Parts

2-3-1. Mechanism Chassis Assembly

Note:

- When removing the mechanism chassis assembly (3), be sure to short-circuit the laser diode output land before removing the connector and the flexible cables.

  After replacing, open the land as it was after inserting the connector and flexible cables.

1. Remove the tray. (Refer to items 2-1-3 and 2-1-4.)
2. Remove three flexible cables (1).
3. Remove four screws (2), then remove the mechanism chassis assembly (3).

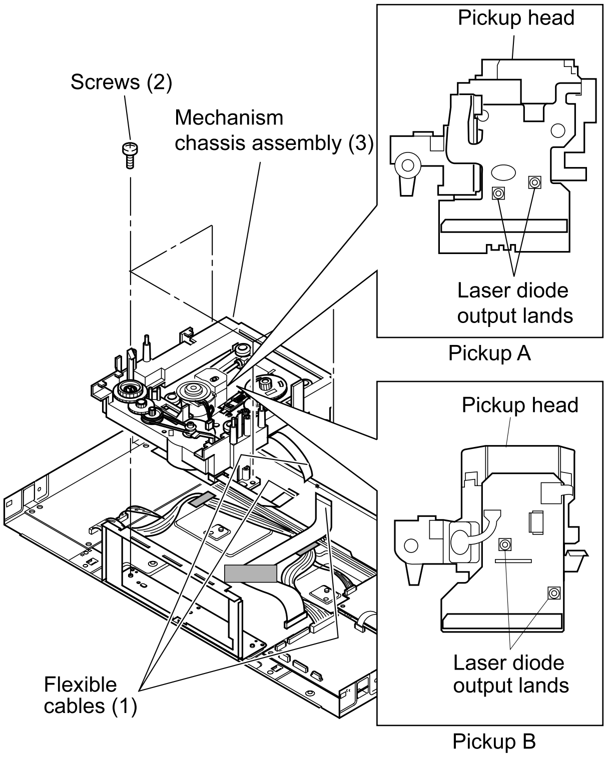

Screws (2)
Mechanism chassis assembly (3)
Pickup head
Laser diode output lands
Pickup A
Pickup head
Laser diode output lands
Pickup B
Flexible cables (1)

Fig. 2-1-24

SECTION 3

SERVICING DIAGRAMS

1. STANDING PC BOARDS FOR SERVICING

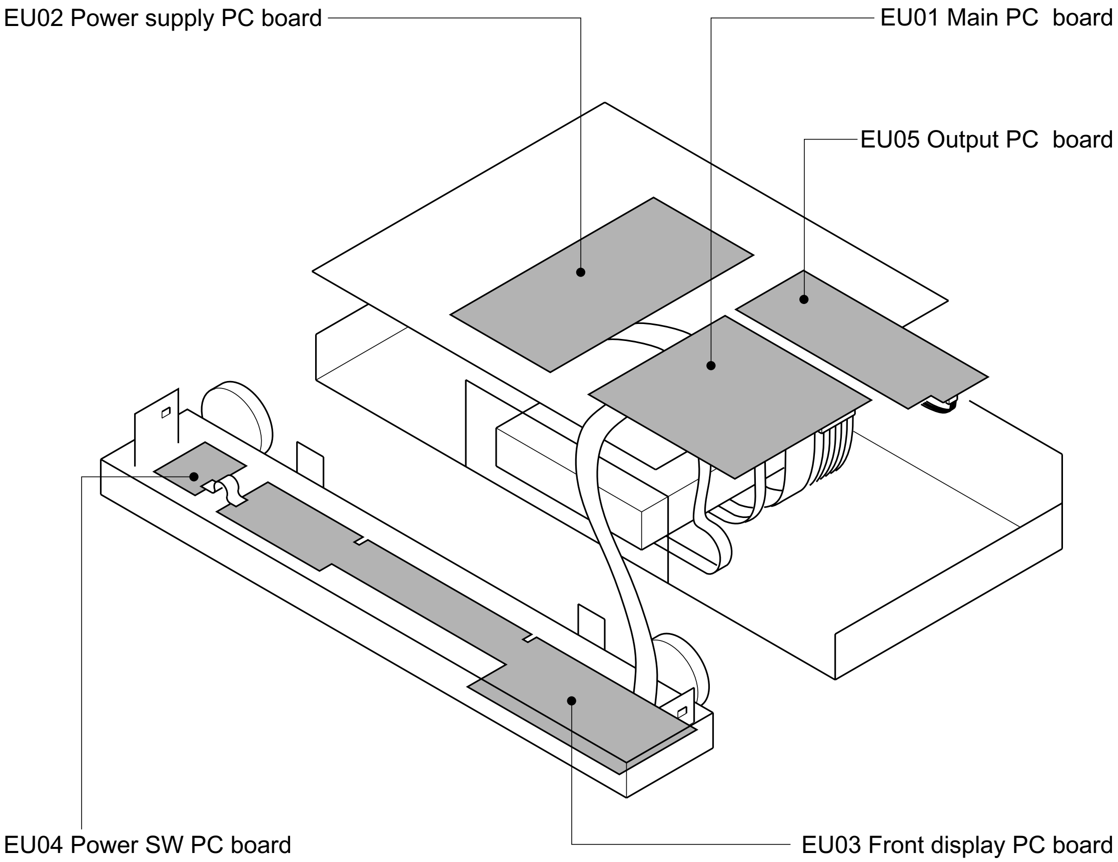

EU02 Power supply PC board
EU01 Main PC board
EU05 Output PC board
EU04 Power SW PC board
EU03 Front display PC board

Fig. 3-1-1

2. CIRCUIT SYMBOLS AND SUPPLEMENTARY EXPLANATION

2-1. Precautions for Part Replacement

- In the schematic diagram, parts marked ⚠ (ex. ⚠ F801) are critical part to meet the safety regulations, so always use the parts bearing specified part codes (SN) when replacing them.
- Using the parts other than those specified shall violate the regulations, and may cause troubles such as operation failures, fire etc.

2-2. Solid Resistor Indication

Unit	None ....Ω K ....kΩ M ....MΩ
Tolerance	None ....±5% B ....±0.1% C ....±0.25% D ....±0.5% F ....±1% G ....±2% K ....±10% M ....±20%
Rated Wattage	(1) Chip Parts None .... 1/16W (2) Other Parts None .... 1/6W Other than above, described in the Circuit Diagram.
Type	None ....Carbon film S ....Solid R ....Oxide metal film W ....Metal film W ....Cement FR ....Fusible

Eg. 1

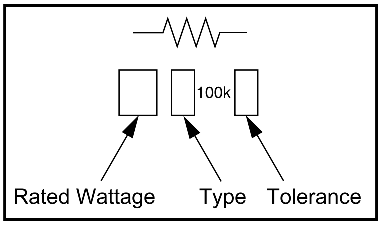
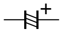
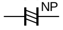
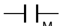
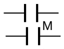
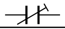

100k
Rated Wattage
Type
Tolerance

Fig. 3-2-1

2-3. Capacitance Indication

Symbol	 ....Electrolytic, Special electrolytic  ....Non polarity electrolytic  ....Ceramic, plastic  ....Film  ....Trimmer
Unit	None ....F µ ....µF p ....pF
Rated voltage	None ....50V For other than 50V and electrolytic capacitors, described in the Circuit Diagram.
Tolerance	(1) Ceramic, plastic, and film capacitors of which capacitance are more than 10 pF. None ....±5% or more B ....±0.1% C ....±0.25% D ....±0.5% F ....±1% G ....±2% (2) Ceramic, plastic, and film capacitors of which capacitance are 10 pF or less. None ....more than ±5% pF B ....±0.1 pF C ....±0.25 pF (3) Electrolytic, Trimmer Tolerance is not described.
Temperature characteristic (Ceramic capacitor)	None ....SL For others, temperature characteristics are described. (For capacitors of 0.01 µF and no indications are described as F.)
Static electricity capacity (Ceramic capacitor)	Sometimes described with abbreviated letters as shown in Eg. 3.

Eg. 2

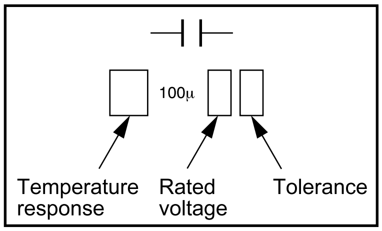

100µ
Temperature response
Rated voltage
Tolerance

Fig. 3-2-2

Eg. 3

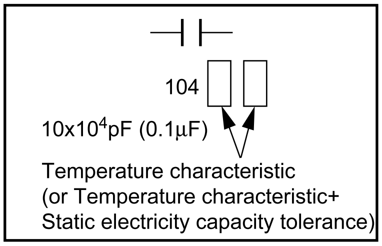

104
10x10⁴pF (0.1µF)
Temperature characteristic
(or Temperature characteristic+
Static electricity capacity tolerance)

Fig. 3-2-3

2-4. Inductor Indication

Unit	None .... H µ .... µH m .... mH
Tolerance	None .... ±5% B .... ±0.1% C .... ±0.25% D .... ±0.5% F .... ±1% G .... ±2% K .... ±10% M .... ±20%

Eg. 4

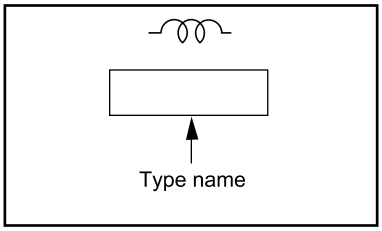


Fig. 3-2-4

2-5. Waveform and Voltage Measurement

- The waveforms for CD/DVD and RF shown in the circuit diagrams are obtained when a test disc is played back.
- All voltage values except the waveforms are expressed in DC and measured by a digital voltmeter.

Eg. 5

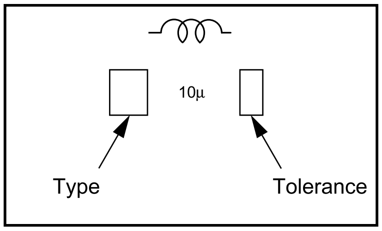


Fig. 3-2-5

2-6. Others

- The parts indicated with "NC" or "KETU" etc. are not used in the circuits of this model.

3. PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

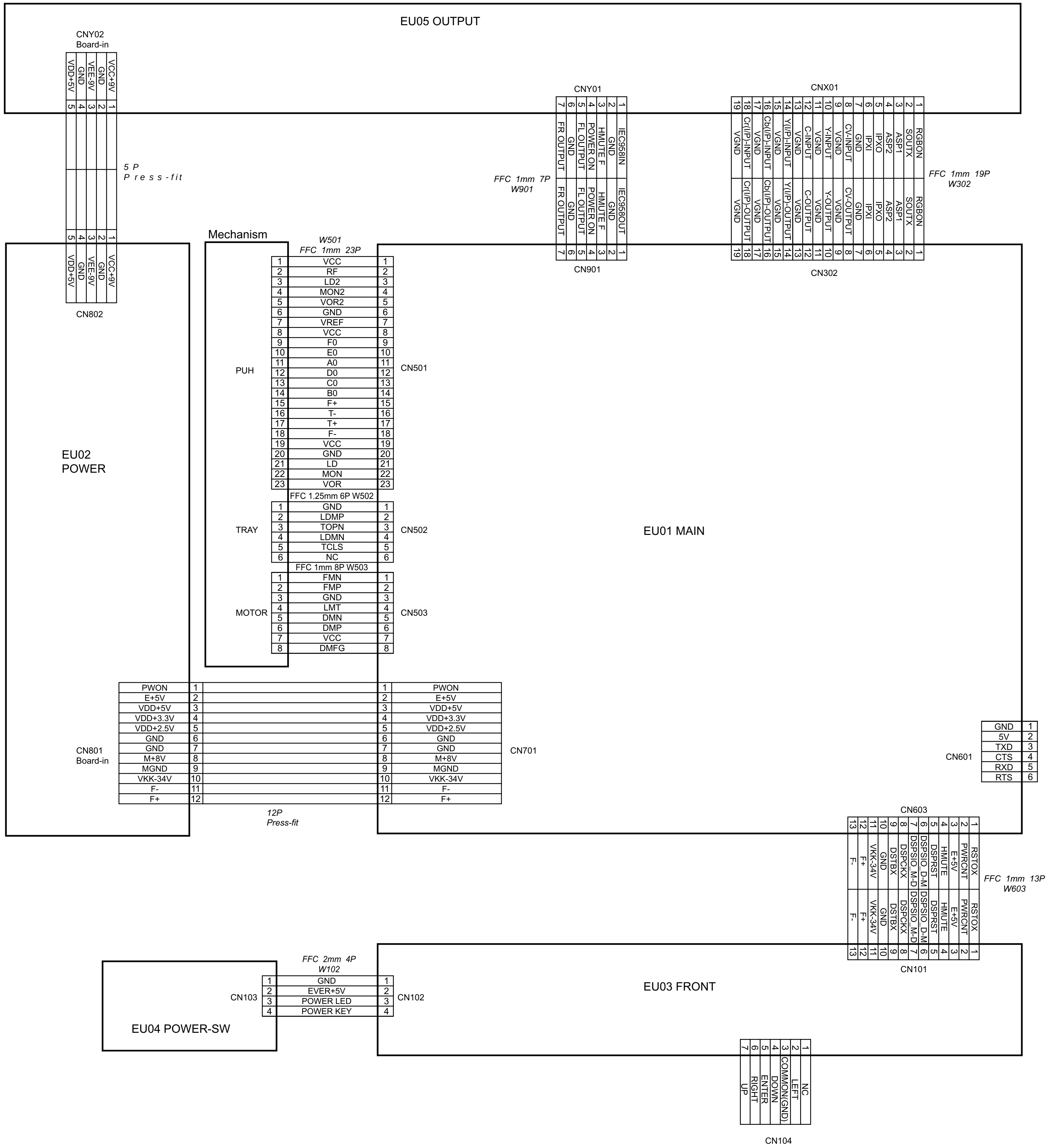

EU05 OUTPUT
CNY02 Board-in
1 VCC+9V
2 GND
3 VEE-9V
4 GND
5 VDD+5V
5 P Press-fit
CN802
CNY01
1 IEC958IN
2 GND
3 HMUTE F
4 POWER ON
5 FL OUTPUT
6 GND
7 FR OUTPUT
FFC 1mm 7P W901
CN901
1 IEC958OUT
2 GND
3 HMUTE F
4 POWER ON
5 FL OUTPUT
6 GND
7 FR OUTPUT
CNX01
1 RGBON
2 SOUTX
3 ASP1
4 ASP2
5 IPXO
6 IPXI
7 GND
8 CV-INPUT
9 VGND
10 Y-INPUT
11 VGND
12 C-INPUT
13 VGND
14 Y(I/P)-INPUT
15 VGND
16 Cb(I/P)-INPUT
17 VGND
18 Cr(I/P)-INPUT
19 VGND
FFC 1mm 19P W302
CN302
1 RGBON
2 SOUTX
3 ASP1
4 ASP2
5 IPXO
6 IPXI
7 GND
8 CV-OUTPUT
9 VGND
10 Y-OUTPUT
11 VGND
12 C-OUTPUT
13 VGND
14 Y(I/P)-OUTPUT
15 VGND
16 Cb(I/P)-OUTPUT
17 VGND
18 Cr(I/P)-OUTPUT
19 VGND
Mechanism
W501 FFC 1mm 23P
PUH
1 VCC
2 RF
3 LD2
4 MON2
5 VOR2
6 GND
7 VREF
8 VCC
9 F0
10 E0
11 A0
12 D0
13 C0
14 B0
15 F+
16 T-
17 T+
18 F-
19 VCC
20 GND
21 LD
22 MON
23 VOR
CN501
FFC 1.25mm 6P W502
TRAY
1 GND
2 LDMP
3 TOPN
4 LDMN
5 TCLS
6 NC
CN502
FFC 1mm 8P W503
MOTOR
1 FMN
2 FMP
3 GND
4 LMT
5 DMN
6 DMP
7 VCC
8 DMFG
CN503
EU02 POWER
EU01 MAIN
CN801 Board-in
1 PWON
2 E+5V
3 VDD+5V
4 VDD+3.3V
5 VDD+2.5V
6 GND
7 GND
8 M+8V
9 MGND
10 VKK-34V
11 F-
12 F+
12P Press-fit
CN701
CN601
1 GND
2 5V
3 TXD
4 CTS
5 RXD
6 RTS
CN603
1 RSTOX
2 PWRCNT
3 E+5V
4 HMUTE
5 DSPRST
6 DSPSIO_D-M
7 DSPSIO_M-D
8 DSPCKX
9 DSTBX
10 GND
11 VKK-34V
12 F+
13 F-
FFC 1mm 13P W603
CN101
EU03 FRONT
FFC 2mm 4P W102
CN103
1 GND
2 EVER+5V
3 POWER LED
4 POWER KEY
CN102
EU04 POWER-SW
CN104
1 NC
2 LEFT
3 COMMON(GND)
4 DOWN
5 ENTER
6 RIGHT
7 UP

Fig. 3-3-1

4. BLOCK DIAGRAMS

4-1. Overall Block Diagram

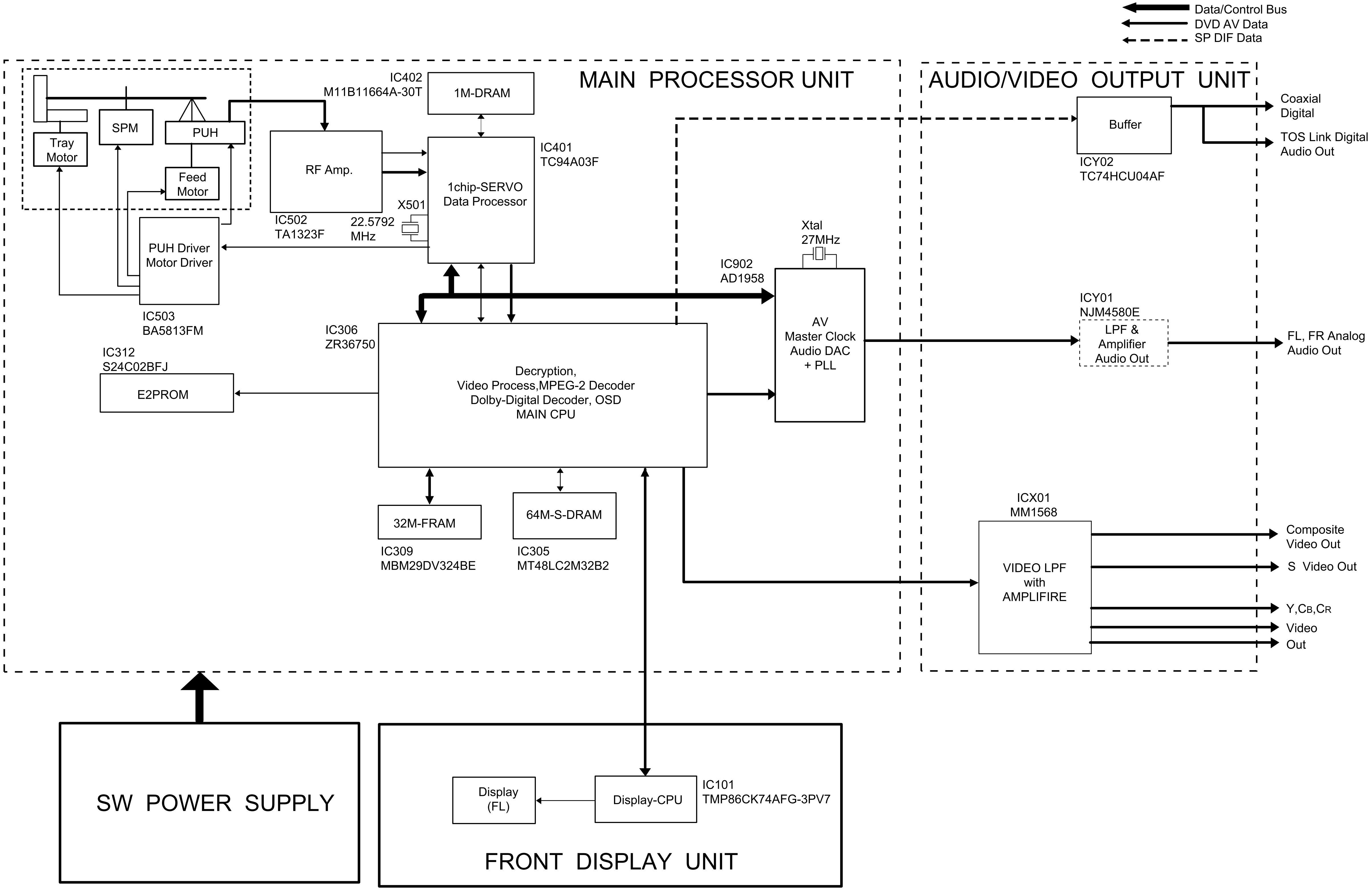

Data/Control Bus
DVD AV Data
SP DIF Data
MAIN PROCESSOR UNIT
AUDIO/VIDEO OUTPUT UNIT
Tray Motor
SPM
PUH
Feed Motor
IC402
M11B11664A-30T
1M-DRAM
RF Amp.
IC502
TA1323F
X501
22.5792 MHz
1chip-SERVO Data Processor
IC401
TC94A03F
PUH Driver Motor Driver
IC503
BA5813FM
IC306
ZR36750
Decryption, Video Process,MPEG-2 Decoder Dolby-Digital Decoder, OSD MAIN CPU
IC312
S24C02BFJ
E2PROM
32M-FRAM
IC309
MBM29DV324BE
64M-S-DRAM
IC305
MT48LC2M32B2
Xtal
27MHz
IC902
AD1958
AV Master Clock Audio DAC + PLL
Buffer
ICY02
TC74HCU04AF
Coaxial Digital
TOS Link Digital Audio Out
ICY01
NJM4580E
LPF & Amplifier Audio Out
FL, FR Analog Audio Out
ICX01
MM1568
VIDEO LPF with AMPLIFIRE
Composite Video Out
S Video Out
Y,CB,CR
Video
Out
SW POWER SUPPLY
Display (FL)
Display-CPU
IC101
TMP86CK74AFG-3PV7
FRONT DISPLAY UNIT

Fig.3-4-1

4-2. Power Supply Block Diagram

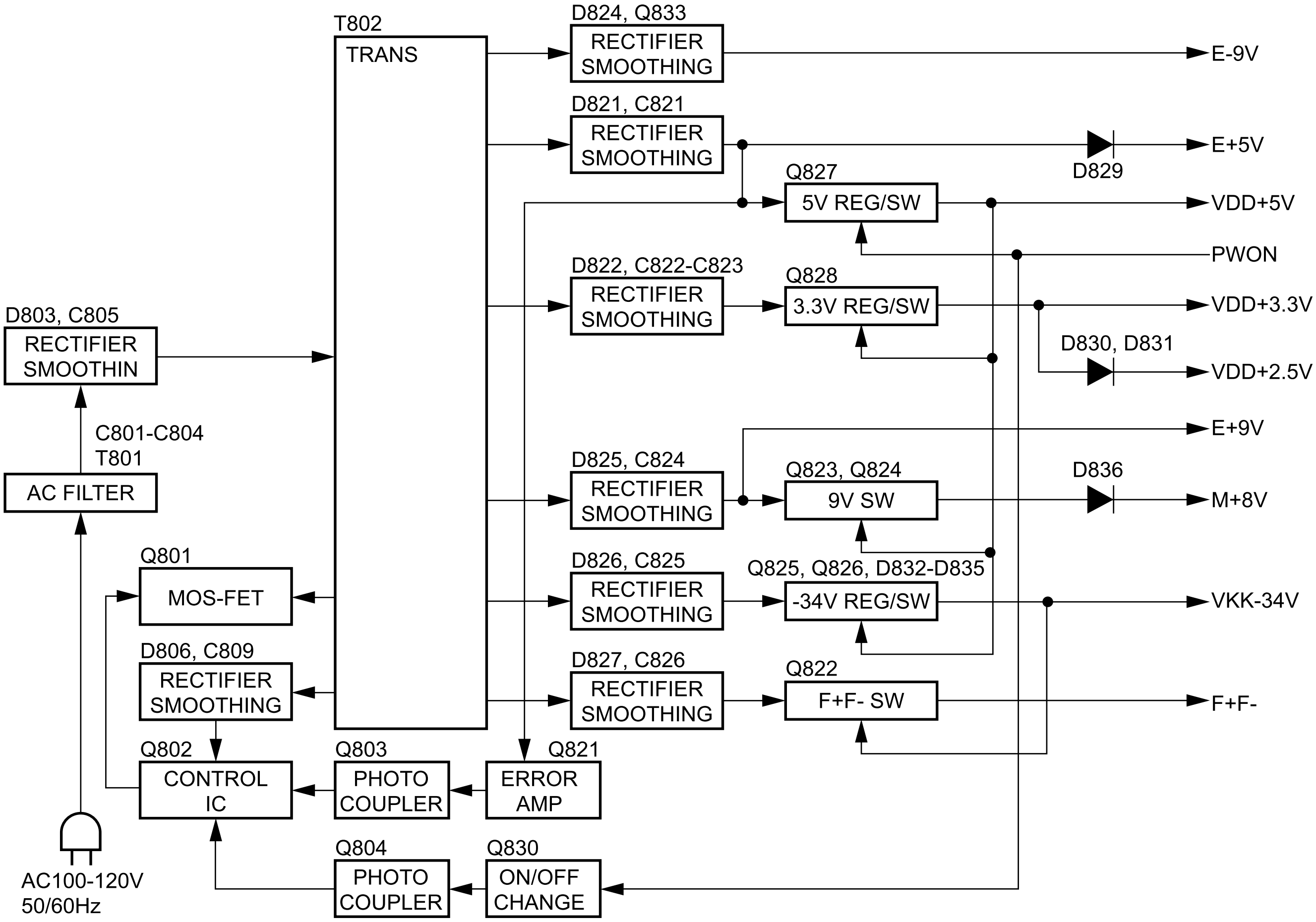

T802
TRANS
D824, Q833
RECTIFIER SMOOTHING
E-9V
D821, C821
RECTIFIER SMOOTHING
E+5V
D829
Q827
5V REG/SW
VDD+5V
PWON
D822, C822-C823
RECTIFIER SMOOTHING
Q828
3.3V REG/SW
VDD+3.3V
D830, D831
VDD+2.5V
D803, C805
RECTIFIER SMOOTHIN
C801-C804
T801
AC FILTER
E+9V
D825, C824
RECTIFIER SMOOTHING
Q823, Q824
9V SW
D836
M+8V
Q801
MOS-FET
D826, C825
RECTIFIER SMOOTHING
Q825, Q826, D832-D835
-34V REG/SW
VKK-34V
D806, C809
RECTIFIER SMOOTHING
D827, C826
RECTIFIER SMOOTHING
Q822
F+F- SW
F+F-
Q802
CONTROL IC
Q803
PHOTO COUPLER
Q821
ERROR AMP
Q804
PHOTO COUPLER
Q830
ON/OFF CHANGE
AC100-120V
50/60Hz

Fig. 3-4-2

4-3. Front Display, Power Switch Block Diagram

4-3-1. Front Display

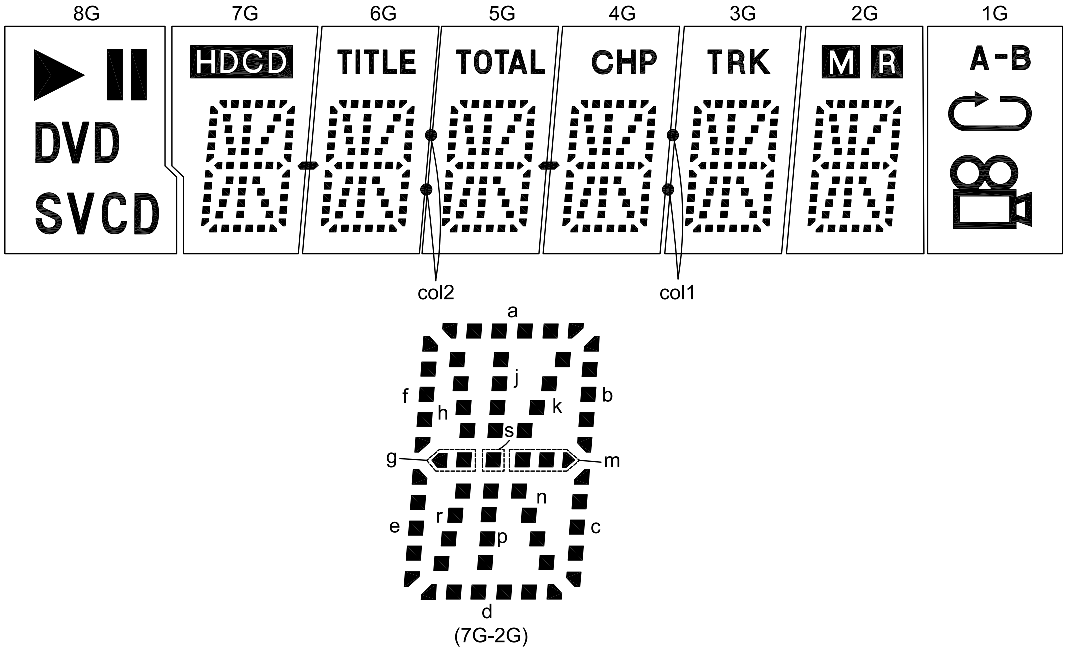

8G
7G
6G
5G
4G
3G
2G
1G
DVD
SVCD
HDCD
TITLE
TOTAL
CHP
TRK
M
R
A-B
col2
col1
a
j
f
h
k
b
s
g
m
n
e
r
c
p
d
(7G-2G)

Fig. 3-4-3

4-3-2. Front Display Pattern

	8G	7G	6G	5G	4G	3G	2G	1G
P1	▶	a	a	a	a	a	a	A
P2	❚❚	f	f	f	f	f	f	-B
P3	DVD	h	h	h	h	h	h	↻
P4	S	j	j	j	j	j	j	🎥
P5	V	k	k	k	k	k	k	–
P6	CD	b	b	b	b	b	b	–
P7	–	g	g	g	g	g	g	–
P8	–	s	s	s	s	s	s	–
P9	–	m	m	m	m	m	m	–
P10	–	e	e	e	e	e	e	–
P11	–	r	r	r	r	r	r	–
P12	–	p	p	p	p	p	p	–
P13	–	n	n	n	n	n	n	–
P14	–	c	c	c	c	c	c	–
P15	–	d	d	d	d	d	d	–
P16	–	–	col2		col1		M	–
P17	–	▬		▬		–	R	–
P18	–	HDCD	TITLE	TOTAL	CHP	TRK	–	–

Fig. 3-4-4

4-3-3. Front Display, Power Switch Block Diagram

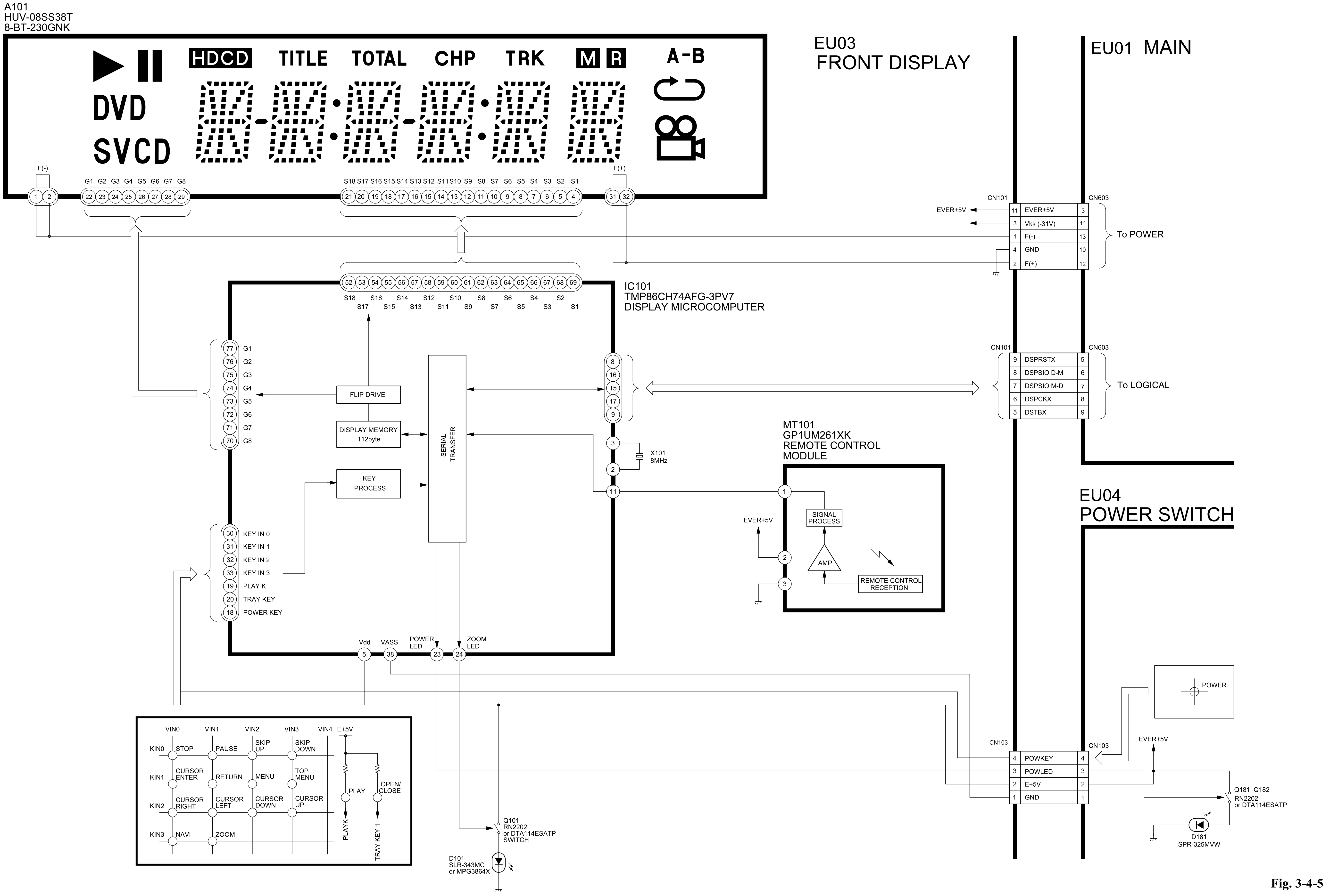

A101
HUV-08SS38T
8-BT-230GNK
HDCD
TITLE
TOTAL
CHP
TRK
M
R
A-B
DVD
SVCD
F(-)
F(+)
G1 G2 G3 G4 G5 G6 G7 G8
S18 S17 S16 S15 S14 S13 S12 S11 S10 S9 S8 S7 S6 S5 S4 S3 S2 S1
EU03
FRONT DISPLAY
EU01 MAIN
CN101
CN603
EVER+5V
EVER+5V
Vkk (-31V)
F(-)
GND
F(+)
To POWER
IC101
TMP86CH74AFG-3PV7
DISPLAY MICROCOMPUTER
DSPRSTX
DSPSIO D-M
DSPSIO M-D
DSPCKX
DSTBX
To LOGICAL
FLIP DRIVE
DISPLAY MEMORY
112byte
SERIAL TRANSFER
KEY PROCESS
KEY IN 0
KEY IN 1
KEY IN 2
KEY IN 3
PLAY K
TRAY KEY
POWER KEY
X101
8MHz
MT101
GP1UM261XK
REMOTE CONTROL
MODULE
SIGNAL PROCESS
AMP
REMOTE CONTROL RECEPTION
EU04
POWER SWITCH
Vdd
VASS
POWER LED
ZOOM LED
POWER
CN103
POWKEY
POWLED
E+5V
GND
Q181, Q182
RN2202
or DTA114ESATP
D181
SPR-325MVW
VIN0 VIN1 VIN2 VIN3 VIN4 E+5V
KIN0 STOP PAUSE SKIP UP SKIP DOWN
KIN1 CURSOR ENTER RETURN MENU TOP MENU
KIN2 CURSOR RIGHT CURSOR LEFT CURSOR DOWN CURSOR UP
KIN3 NAVI ZOOM
PLAY
OPEN/CLOSE
PLAYK
TRAY KEY 1
Q101
RN2202
or DTA114ESATP
SWITCH
D101
SLR-343MC
or MPG3864X

Fig. 3-4-5

4-4. Main Block Diagrams

4-4-1. Servo System Block Diagram

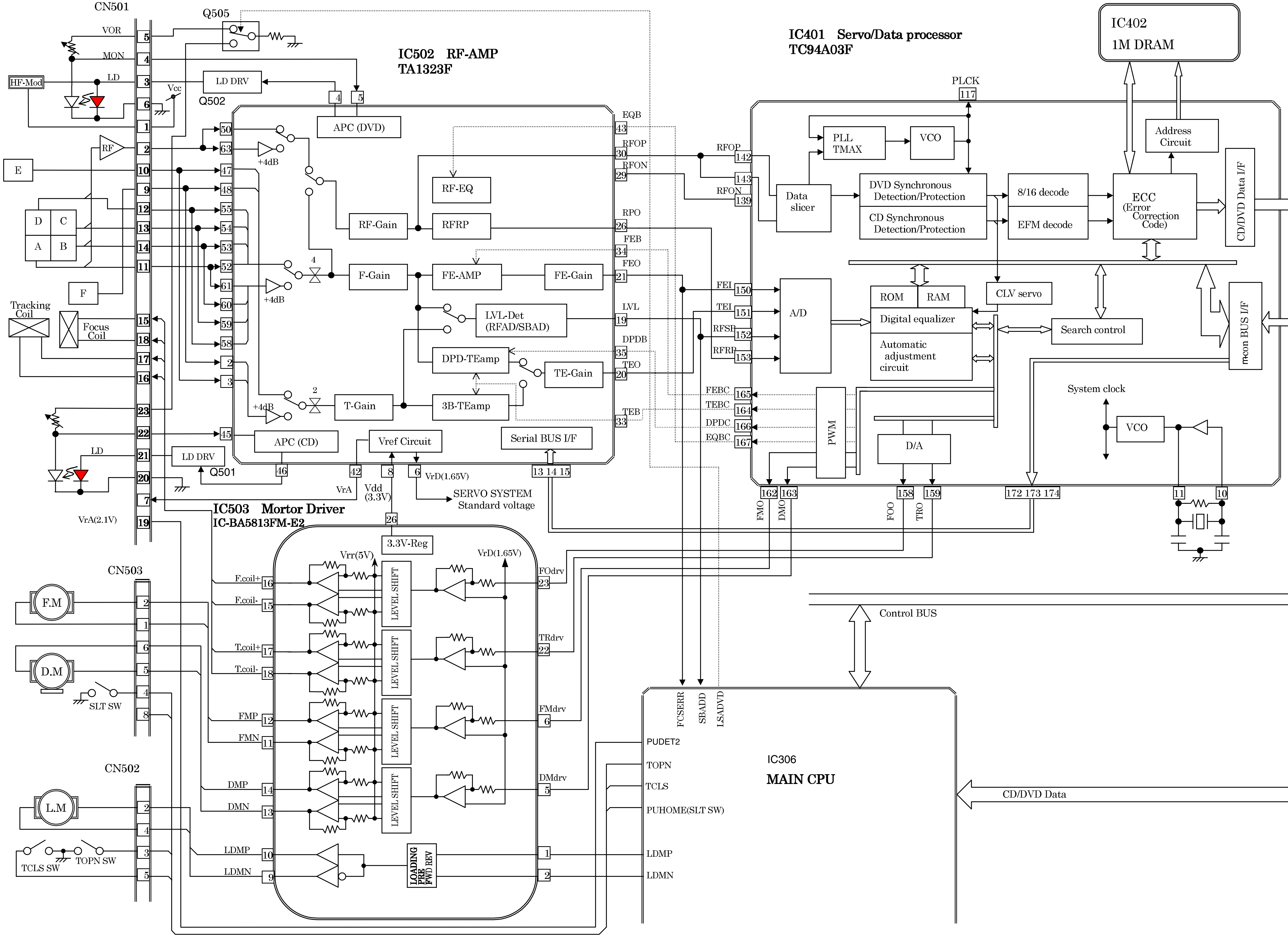

CN501
VOR
MON
LD
HF-Mod
Vcc
Q505
Q502
LD DRV
RF
E
D
C
A
B
F
Tracking Coil
Focus Coil
LD
LD DRV
Q501
VrA(2.1V)
5
4
3
6
1
2
10
9
12
13
14
11
15
18
17
16
23
22
21
20
7
19
IC502 RF-AMP
TA1323F
APC (DVD)
50
63
47
48
55
54
53
52
61
60
59
58
2
3
45
+4dB
4
2
RF-Gain
F-Gain
T-Gain
RF-EQ
RFRP
FE-AMP
FE-Gain
LVL-Det
(RFAD/SBAD)
DPD-TEamp
TE-Gain
3B-TEamp
APC (CD)
Vref Circuit
Serial BUS I/F
46
42
8
6
13 14 15
EQB
43
RFOP
30
RFON
29
RPO
26
FEB
34
FEO
21
LVL
19
DPDB
35
TEO
20
TEB
33
VrA
Vdd
(3.3V)
VrD(1.65V)
SERVO SYSTEM
Standard voltage
IC401 Servo/Data processor
TC94A03F
PLCK
117
RFOP
142
143
RFON
139
Data slicer
PLL
TMAX
VCO
DVD Synchronous
Detection/Protection
CD Synchronous
Detection/Protection
8/16 decode
EFM decode
Address Circuit
ECC
(Error Correction Code)
CD/DVD Data I/F
IC402
1M DRAM
FEI
150
TEI
151
RFSB
152
RFRP
153
A/D
ROM
RAM
Digital equalizer
Automatic adjustment circuit
CLV servo
Search control
mcon BUS I/F
FEBC
165
TEBC
164
DPDC
166
EQBC
167
PWM
D/A
System clock
VCO
162
163
158
159
172 173 174
11
10
FMO
DMO
FOO
TRO
IC503 Mortor Driver
IC-BA5813FM-E2
26
3.3V-Reg
Vrr(5V)
VrD(1.65V)
LEVEL SHIFT
LEVEL SHIFT
LEVEL SHIFT
LEVEL SHIFT
F.coil+
16
F.coil-
15
T.coil+
17
T.coil-
18
FMP
12
FMN
11
DMP
14
DMN
13
LDMP
10
LDMN
9
FOdrv
23
TRdrv
22
FMdrv
6
DMdrv
5
1
2
LOADING
PRE
FWD REV
CN503
F.M
D.M
SLT SW
2
1
6
5
4
8
CN502
L.M
TCLS SW
TOPN SW
2
4
3
5
Control BUS
CD/DVD Data
FCSERR
SBADD
LSADVD
PUDET2
TOPN
TCLS
PUHOME(SLT SW)
LDMP
LDMN
IC306
MAIN CPU

Fig.3-4-6

4-4-2. Logical System Block Diagram

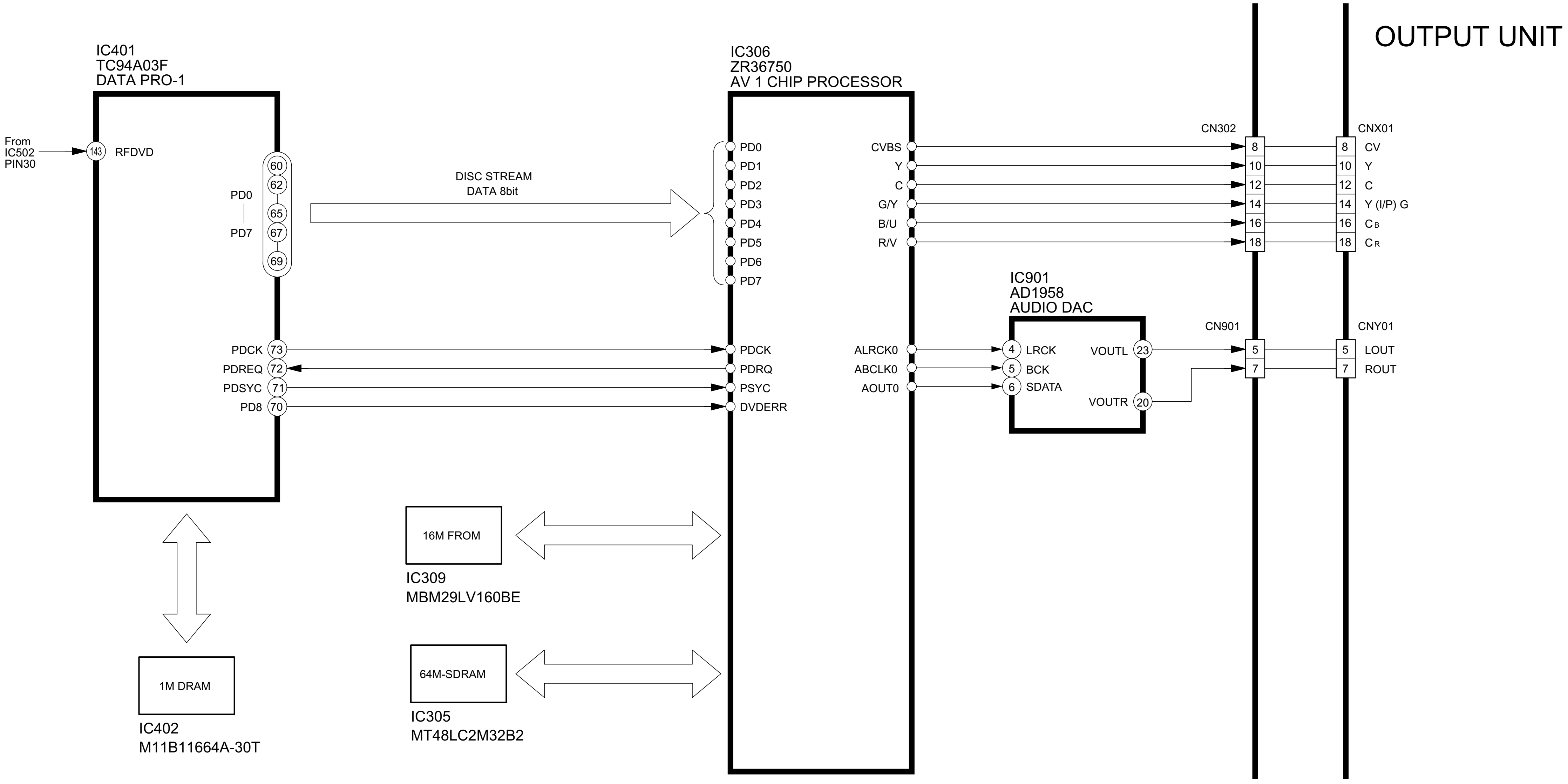

OUTPUT UNIT
IC401
TC94A03F
DATA PRO-1
From IC502 PIN30
143 RFDVD
PD0
PD7
60
62
65
67
69
DISC STREAM
DATA 8bit
PDCK 73
PDREQ 72
PDSYC 71
PD8 70
IC306
ZR36750
AV 1 CHIP PROCESSOR
PD0
PD1
PD2
PD3
PD4
PD5
PD6
PD7
PDCK
PDRQ
PSYC
DVDERR
CVBS
Y
C
G/Y
B/U
R/V
ALRCK0
ABCLK0
AOUT0
CN302
CNX01
8 CV
10 Y
12 C
14 Y (I/P) G
16 CB
18 CR
IC901
AD1958
AUDIO DAC
4 LRCK
5 BCK
6 SDATA
VOUTL 23
VOUTR 20
CN901
CNY01
5 LOUT
7 ROUT
16M FROM
IC309
MBM29LV160BE
64M-SDRAM
IC305
MT48LC2M32B2
1M DRAM
IC402
M11B11664A-30T

Fig. 3-4-7

4-5. Output Block Diagram

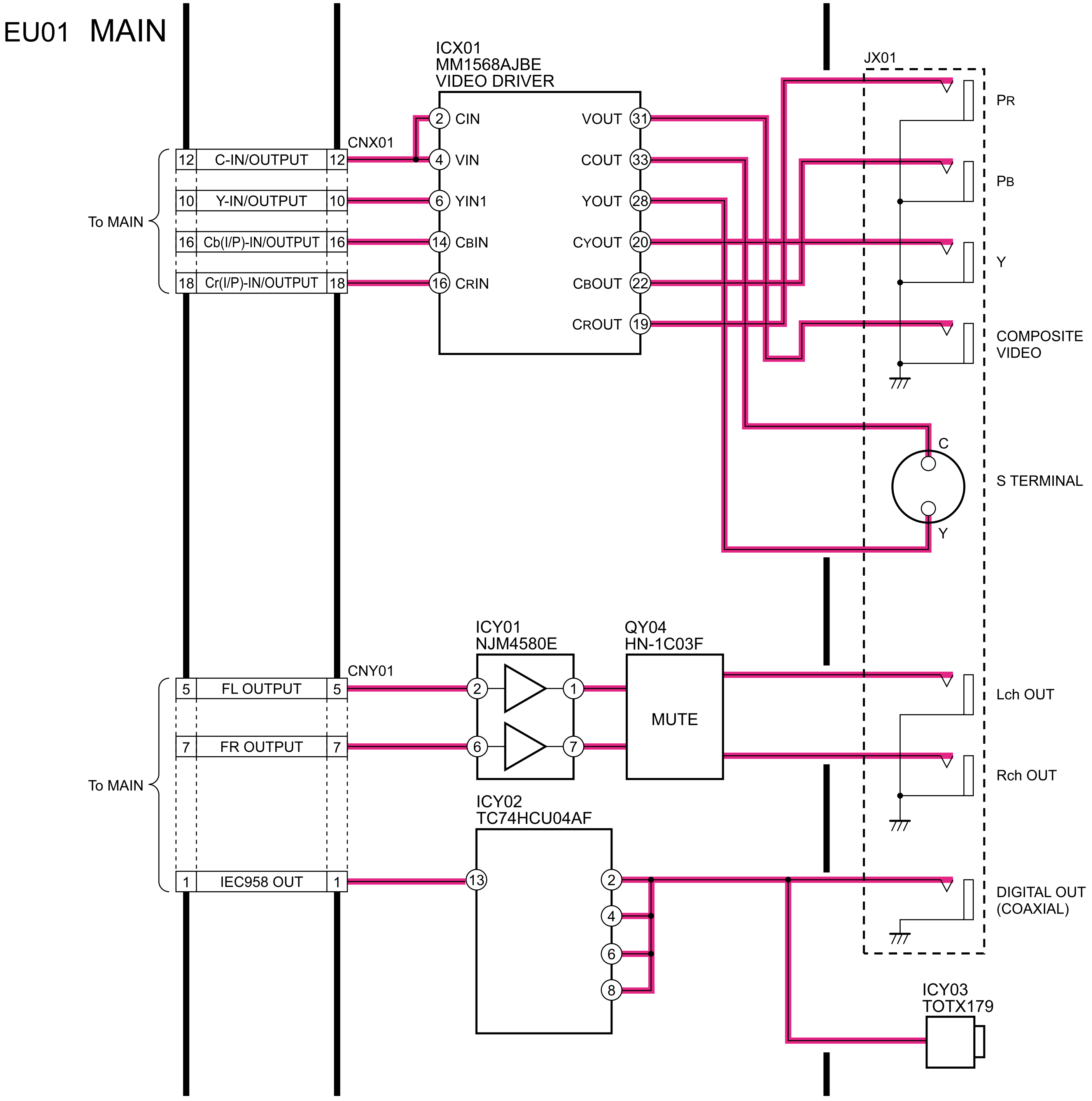
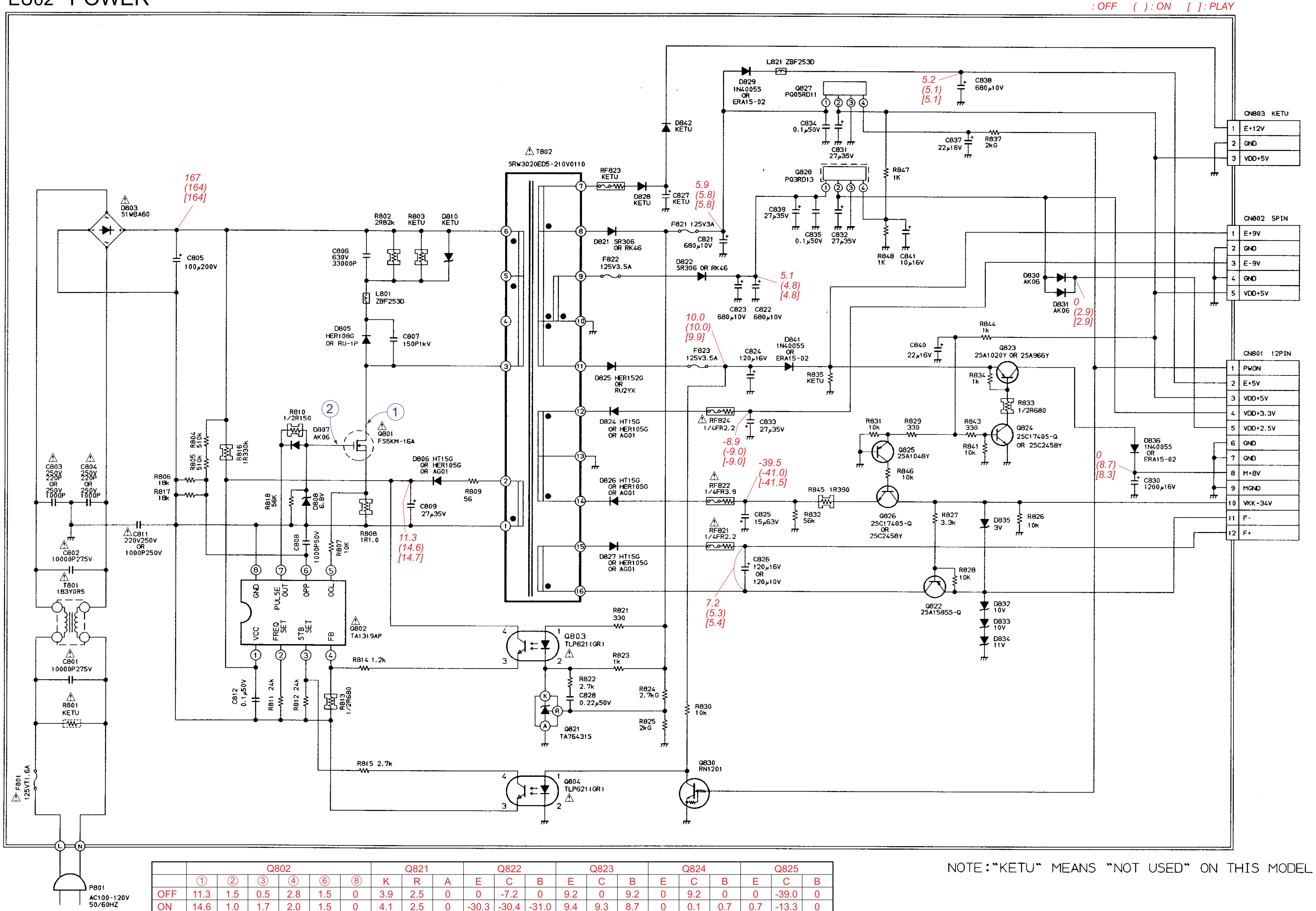

EU01 MAIN
ICX01
MM1568AJBE
VIDEO DRIVER
CNX01
To MAIN
12 C-IN/OUTPUT 12
10 Y-IN/OUTPUT 10
16 Cb(I/P)-IN/OUTPUT 16
18 Cr(I/P)-IN/OUTPUT 18
2 CIN
4 VIN
6 YIN1
14 CBIN
16 CRIN
VOUT 31
COUT 33
YOUT 28
CYOUT 20
CBOUT 22
CROUT 19
JX01
PR
PB
Y
COMPOSITE VIDEO
C
S TERMINAL
Y
ICY01
NJM4580E
QY04
HN-1C03F
CNY01
5 FL OUTPUT 5
7 FR OUTPUT 7
1 IEC958 OUT 1
2
1
6
7
MUTE
Lch OUT
Rch OUT
ICY02
TC74HCU04AF
13
2
4
6
8
DIGITAL OUT (COAXIAL)
ICY03
TOTX179

Fig. 3-4-8

5. CIRCUIT DIAGRAMS

5-1. Power Supply Circuit Diagram

EU02 POWER



: OFF ( ) : ON [ ] : PLAY
T802
SRW3020ED5-210V0110
D803 S1WBA60
167
(164)
[164]
C805 100μ200V
R802 2R82k
R803 KETU
D810 KETU
C806 630V 3300P
L801 ZBF253D
D805 HER108G OR RU-1P
C807 150P1kV
R810 1/2R150
D807 AK06
Q801 FS5KM-16A
D806 HT15G OR HER105G OR AG01
R809 56
C809 27μ35V
R808 1R1.0
11.3
(14.6)
[14.7]
D808 6.8V
R818 56K
C808 1000P50V
R807 10K
Q802 TA1319AP
GND
PULSE OUT
OPP
OCL
VCC
FREQ SET
STB SET
FB
R814 1.2k
C812 0.1μ50V
R811 24k
R812 24k
R813 1/2R680
R815 2.7k
R804 510k
R805 510k
R816 1R330k
R806 18k
R817 18k
C803 250V 220P OR 250V 1000P
C804 250V 220P OR 250V 1000P
C811 220V250V OR 1000P250V
C802 10000P275V
T801 183Y0R5
C801 10000P275V
R801 KETU
F801 125VT1.6A
P801 AC100-120V 50/60HZ
L
N
RF823 KETU
D828 KETU
C827 KETU
D842 KETU
5.9
(5.8)
[5.8]
D821 SR306 OR RK46
F821 125V3A
C821 680μ10V
F822 125V3.5A
D822 SR306 OR RK46
C823 680μ10V
C822 680μ10V
5.1
(4.8)
[4.8]
10.0
(10.0)
[9.9]
F823 125V3.5A
D825 HER152G OR RU2YX
C824 120μ16V
D841 1N4005S OR ERA15-02
R835 KETU
D824 HT15G OR HER105G OR AG01
RF824 1/4FR2.2
C833 27μ35V
-8.9
(-9.0)
[-9.0]
-39.5
(-41.0)
[-41.5]
D826 HT15G OR HER105G OR AG01
RF822 1/4FR3.9
C825 15μ63V
R832 56k
R845 1R390
Q826 2SC1740S-Q OR 2SC2458Y
D827 HT15G OR HER105G OR AG01
RF821 1/4FR2.2
C826 120μ16V OR 120μ10V
7.2
(5.3)
[5.4]
R821 330
Q803 TLP621(GR)
R823 1k
R822 2.7k
C828 0.22μ50V
Q821 TA76431S
R824 2.7kG
R825 2kG
R830 10k
Q830 RN1201
Q804 TLP621(GR)
L821 ZBF253D
D829 1N4005S OR ERA15-02
Q827 PQ05RD11
5.2
(5.1)
[5.1]
C838 680μ10V
C834 0.1μ50V
C831 27μ35V
C837 22μ16V
R837 2kG
Q828 PQ3RD13
R847 1K
C839 27μ35V
C835 0.1μ50V
C832 27μ35V
R848 1K
C841 10μ16V
D830 AK06
D831 AK06
0
(2.9)
[2.9]
R844 1k
C840 22μ16V
Q823 2SA1020Y OR 2SA966Y
R834 1k
R833 1/2R680
R831 10k
R829 330
R843 330
Q825 2SA1048Y
R841 10k
Q824 2SC1740S-Q OR 2SC2458Y
R846 10k
R827 3.3k
D835 3V
R826 10k
R828 10K
Q822 2SA1585S-Q
D832 10V
D833 10V
D834 11V
D836 1N4005S OR ERA15-02
0
(8.7)
[8.3]
C830 1200μ16V
CN803 KETU
1 E+12V
2 GND
3 VDD+5V
CN802 5PIN
1 E+9V
2 GND
3 E-9V
4 GND
5 VDD+5V
CN801 12PIN
1 PWON
2 E+5V
3 VDD+5V
4 VDD+3.3V
5 VDD+2.5V
6 GND
7 GND
8 M+8V
9 MGND
10 VKK-34V
11 F-
12 F+

	Q802						Q821			Q822			Q823			Q824			Q825		
	①	②	③	④	⑥	⑧	K	R	A	E	C	B	E	C	B	E	C	B	E	C	B
OFF	11.3	1.5	0.5	2.8	1.5	0	3.9	2.5	0	0	-7.2	0	9.2	0	9.2	0	9.2	0	0	-39.0	0
ON	14.6	1.0	1.7	2.0	1.5	0	4.1	2.5	0	-30.3	-30.4	-31.0	9.4	9.3	8.7	0	0.1	0.7	0.7	-13.3	0
PLAY	14.7	1.0	1.7	2.0	1.5	0	4.1	2.5	0	-30.3	-30.4	-31.0	9.1	9.0	8.4	0	0.1	0.7	0.7	-13.3	0

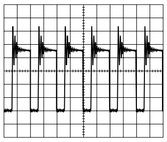
	Q826			Q827				Q828				Q830		
	E	C	B	①	②	③	④	①	②	③	④	E	C	B
OFF	-39.5	0	-39.0	5.9	5.0	0	0	5.1	3.3	0	0	0	1.0	0
ON	-34.0	-34.0	-33.0	5.8	5.0	0	5.0	4.8	3.3	0	2.5	0	0.01	5.0
PLAY	-34.0	-34.0	-33.0	5.8	5.0	0	5.0	4.8	3.3	0	2.5	0	0.01	5.0

NOTE: "KETU" MEANS "NOT USED" ON THIS MODEL

Fig. 3-5-1

Power Supply Circuit Diagram

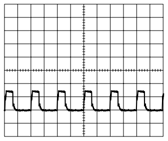
① Q801 Drain-Sourse D-4



ON MODE
AC 120V 60 Hz IN

V:100 V/div
H:5 μs/div

② Q801 Gate-Sourse D-3

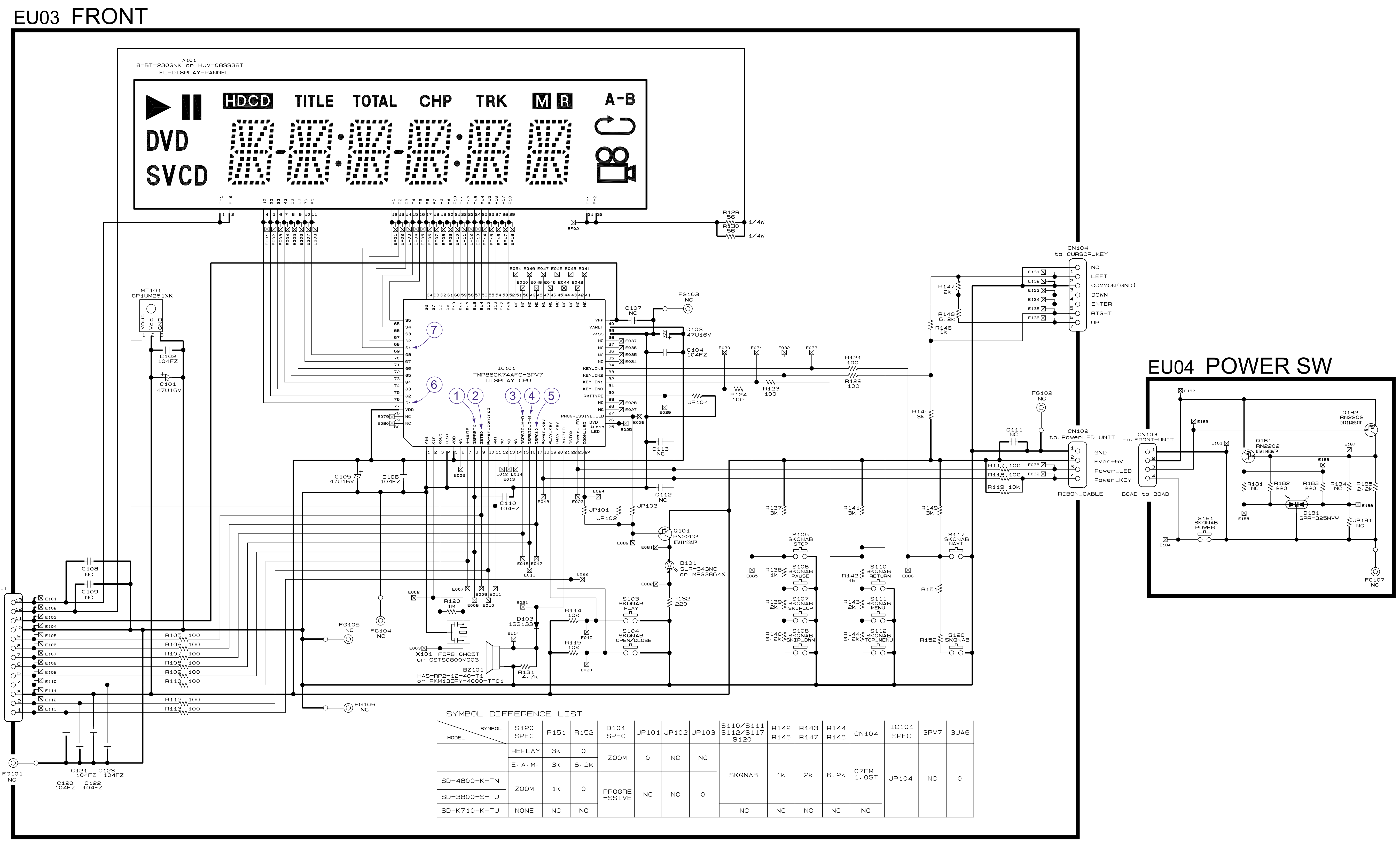


ON MODE
AC 120V 60 Hz IN

V:5 V/div
H:5 μs/div

Fig. 3-5-2

5-2. Front Display, Power Switch Circuit Diagram



EU03 FRONT
A101
8-BT-230GNK or HUV-08SS38T
FL-DISPLAY-PANNEL
HDCD
TITLE
TOTAL
CHP
TRK
M
R
A-B
DVD
SVCD
MT101
GP1UM261XK
IC101
TMP86CK74AFG-3PV7
DISPLAY-CPU
CN104
to. CURSOR_KEY
NC
LEFT
COMMON(GND)
DOWN
ENTER
RIGHT
UP
CN102
to. PowerLED-UNIT
GND
Ever+5V
Power_LED
Power_KEY
RIBON_CABLE
CN101
to. MAIN-UNIT
F(-) -31.0V
F(+) -25.9V
Vkk -34.0V
GND
DSTBX
DSPCKX
DSPSIO_M-D
DSPSIO_D-M
DSPRSTX
HMUTE
Ever+5V
PWRCNT
RSTOX
X101 FCR8.0MC5T
or CSTS0800MG03
BZ101
HAS-RP2-12-40-T1
or PKM13EPY-4000-TF01
D101
SLR-343MC
or MPG3864X
Q101
RN2202
S103 SKQNAB PLAY
S104 SKQNAB OPEN/CLOSE
S105 SKQNAB STOP
S106 SKQNAB PAUSE
S107 SKQNAB SKIP_UP
S108 SKQNAB SKIP_DWN
S110 SKQNAB RETURN
S111 SKQNAB MENU
S112 SKQNAB TOP_MENU
S117 SKQNAB NAVI
S120 SKQNAB
EU04 POWER SW
CN103
to. FRONT-UNIT
BOAD to BOAD
Q181
RN2202
Q182
RN2202
D181
SPR-325MVW
S181
SKQNAB
POWER
FG107
NC

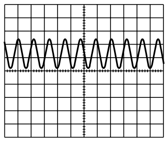
SYMBOL DIFFERENCE LIST

SYMBOL / MODEL	S120 SPEC	R151	R152	D101 SPEC	JP101	JP102	JP103	S110/S111 S112/S117 S120	R142 R146	R143 R147	R144 R148	CN104	IC101 SPEC	3PV7	3UA6
	REPLAY	3k	0	ZOOM	0	NC	NC	SKQNAB	1k	2k	6.2k	07FM 1.0ST	JP104	NC	0
	E.A.M.	3k	6.2k												
SD-4800-K-TN	ZOOM	1k	0	PROGRE -SSIVE	NC	NC	0								
SD-3800-S-TU															
SD-K710-K-TU	NONE	NC	NC					NC	NC	NC	NC	NC			

Fig. 3-5-3

Front Display, Power Switch Circuit Diagram

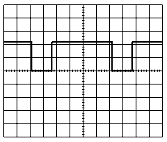
① IC101, Pin ③ D-4



X-OUT

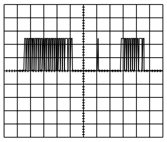
V: 2 V/div
H: 100 ns/div

② IC101, Pin ⑨ D-4



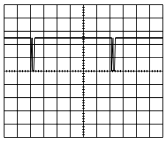
V: 2 V/div
H: 5 ms/div

③ IC101, Pin ⑮ D-5



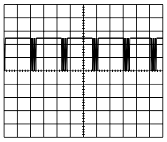
V: 2 V/div
H: 200 ms/div

④ IC101, Pin ⑯ D-5



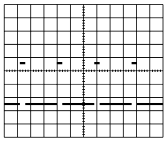
V: 2 V/div
H: 5 ms/div

⑤ IC101, Pin ⑰ D-5



V: 2 V/div
H: 100 µs/div

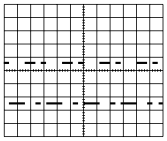
⑥ IC101, Pin (77) D-4



G1

V: 10 V/div
H: 500 µs/div

⑦ IC101, Pin (69) D-4



S1

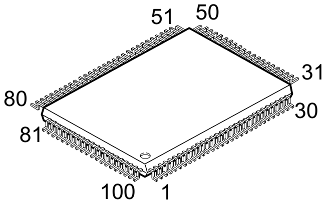
V: 10 V/div
H: 500 µs/div

Fig. 3-5-4

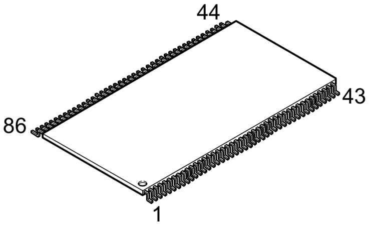
5-3. Main Circuit Diagrams

5-3-1. Main ICs Information

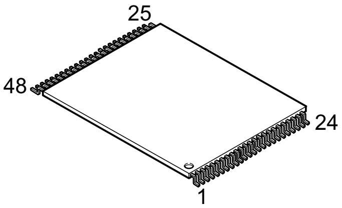
TMP87CH75F


51
50
31
80
30
81
100
1

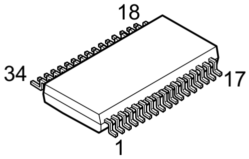
W986432DH



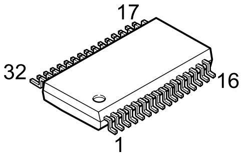
MBM29DL3240BE



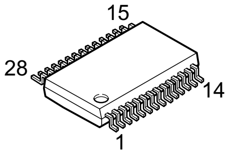
MM1568AJ



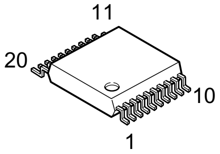
BH7863



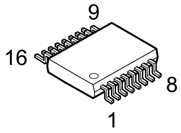
AD1958YRS



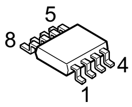
TC74VHCT
244AFT



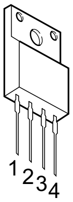
PCM1742



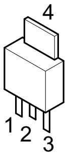
S24C02AFJA



PQ3RD23
PQ05RD11



MPC2948T



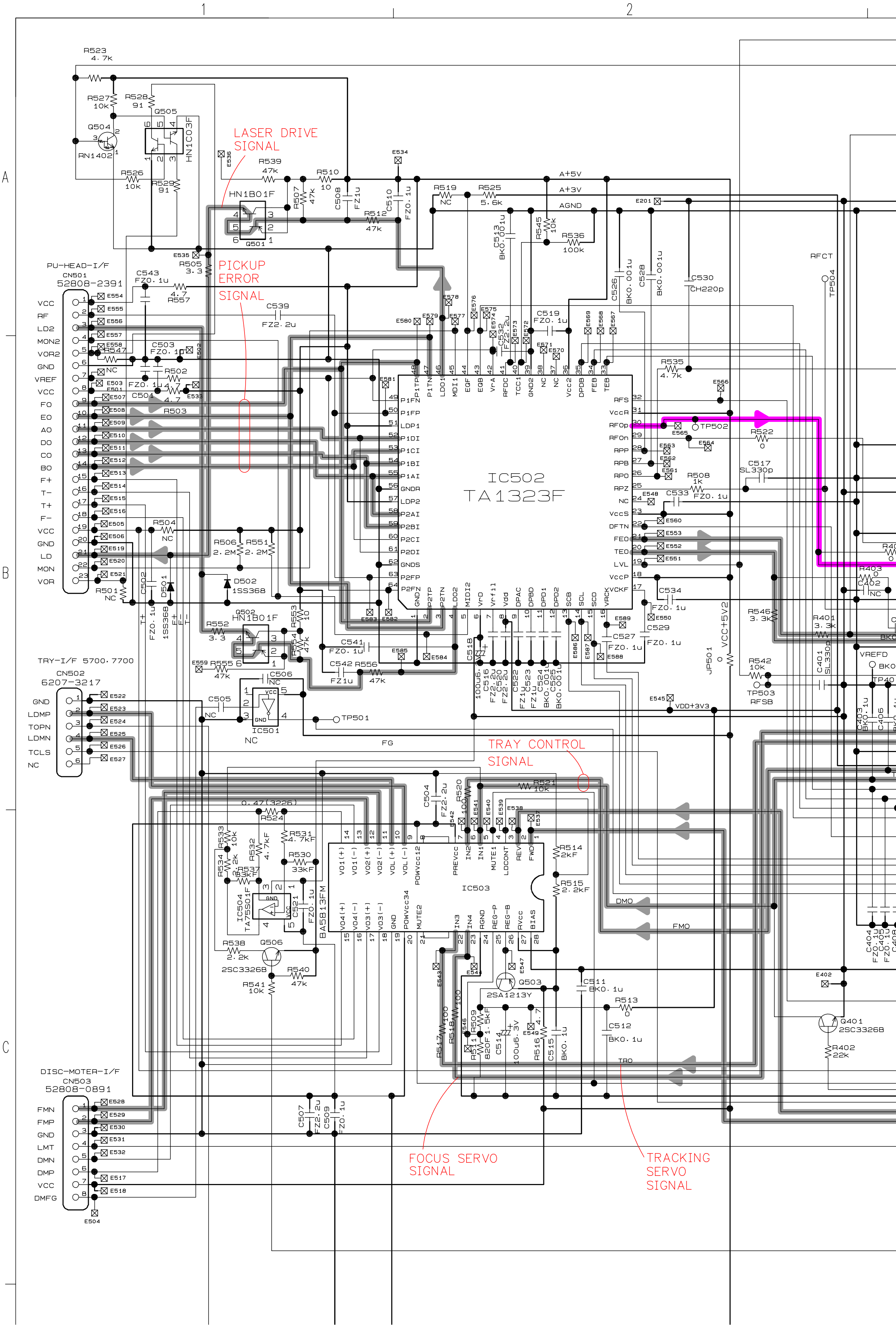
5-3-2. Main Circuit Diagram

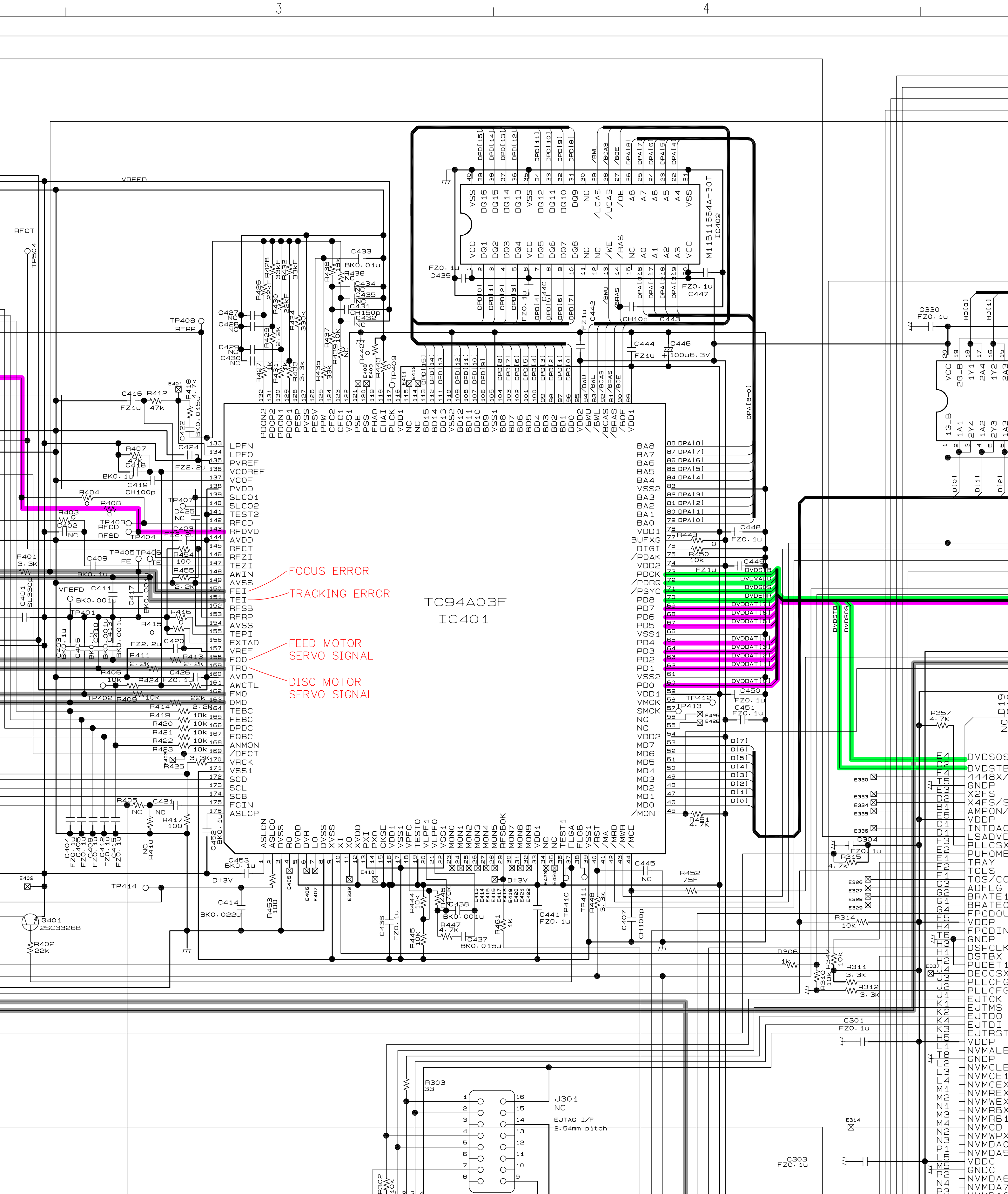
LASER DRIVE SIGNAL
PICKUP ERROR SIGNAL
PU-HEAD-I/F
CN501
52808-2391
TRY-I/F 5700-7700
CN502
5267-3217
DISC-MOTER-I/F
CN503
52808-0891
IC502
TA1323F
TRAY CONTROL SIGNAL
FOCUS SERVO SIGNAL
TRACKING SERVO SIGNAL
FOCUS ERROR
TRACKING ERROR
FEED MOTOR SERVO SIGNAL
DISC MOTOR SERVO SIGNAL
TC94A03F
IC401
IC503
IC306
ZR36750
JP301
OPEN:FLASH
CLOSE:DEBUG
J301
RS232C-I/F TOP
CN601
CN603
52808-1391
FRONT-MPU-I/F
IC301
TC7S08F
IC302
TC7S08F
IC303
TC7S08F
IC304
S80145CLMC
IC307
S24C02AFJ-TB
IC308
S24C02AFJ-TB
CN302
52808-1991
VIDEO-SIGNAL I/F
AUDIO SIGNAL L
AUDIO SIGNAL R
IC902
AD1958
IC903
PCM1742KE
IC904
PCM1742KE
IC905
MM1575A
AUDIO-SIGNAL I/F
CN901
52808-1591
POWER-SUPPLY
CN701
B12B-PH-SM3-TB
1 2 3 4 5 6 7 8
A B C D E F

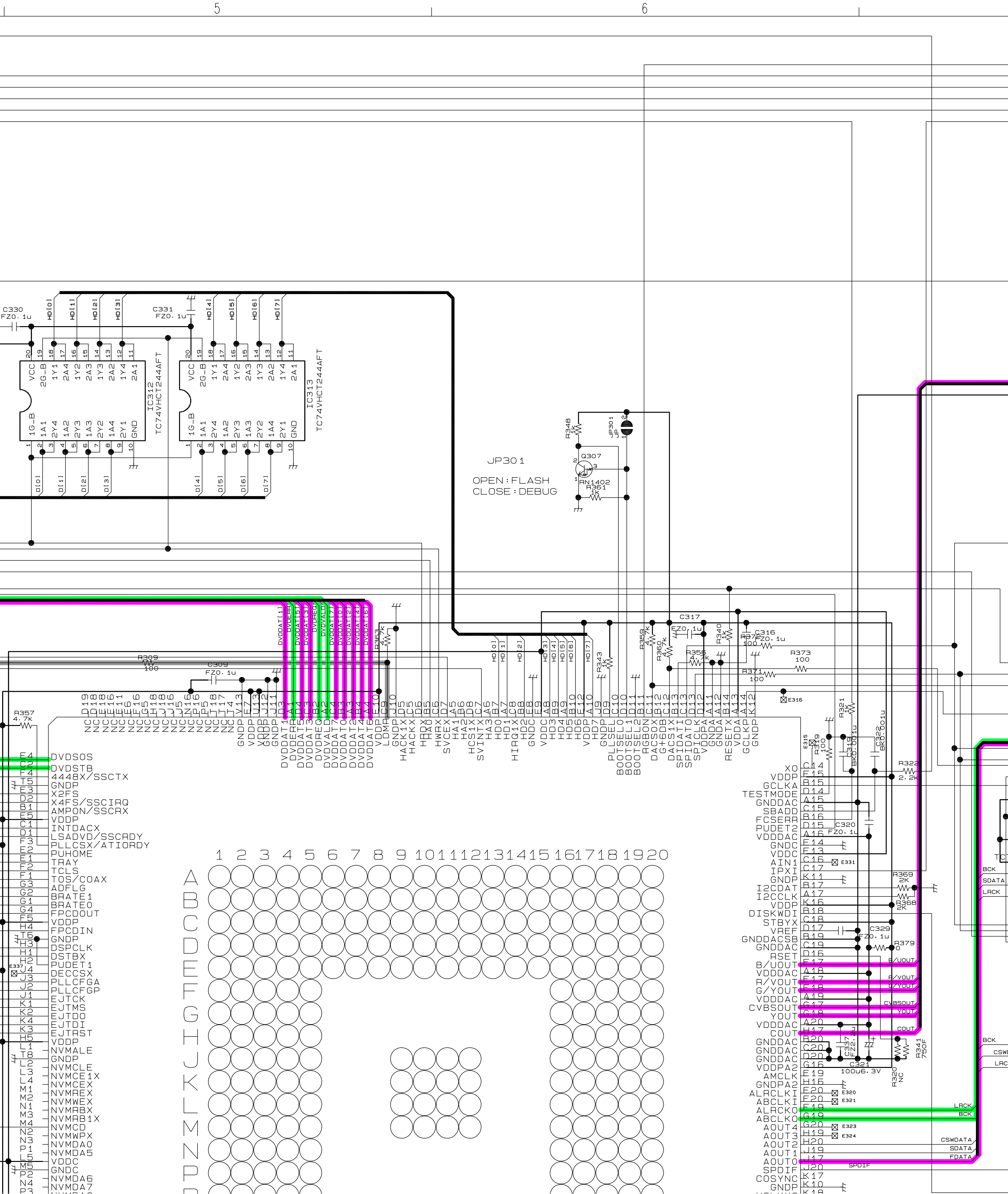
	SD3800	SD4800
CN901	52808-0791	52808-1591
D902	NC	1SS184
D903	NC	1SS184
R913	NC	33
R914	NC	33
R915	NC	33
R916	NC	33
R918	NC	4.7k
R919	NC	4.7k
IC901	NC	TC7SH08FU
C901	NC	FZ0.1u
IC903	NC	PCM1742KE
IC904	NC	PCM1742KE
C904	NC	10u16V
C905	NC	10u16V
C908	NC	10u16V
C909	NC	10u16V
C911	NC	10u16V
C912	NC	10u16V
C922	NC	FZ0.1u
C923	NC	FZ0.1u
C924	NC	FZ0.1u
C925	NC	FZ0.1u
IC308	NC	S24C02AFJ
IC905	NC	MM1575A
C926	NC	FZ0.1u
C927	NC	FZ1u
C928	NC	FZ1u

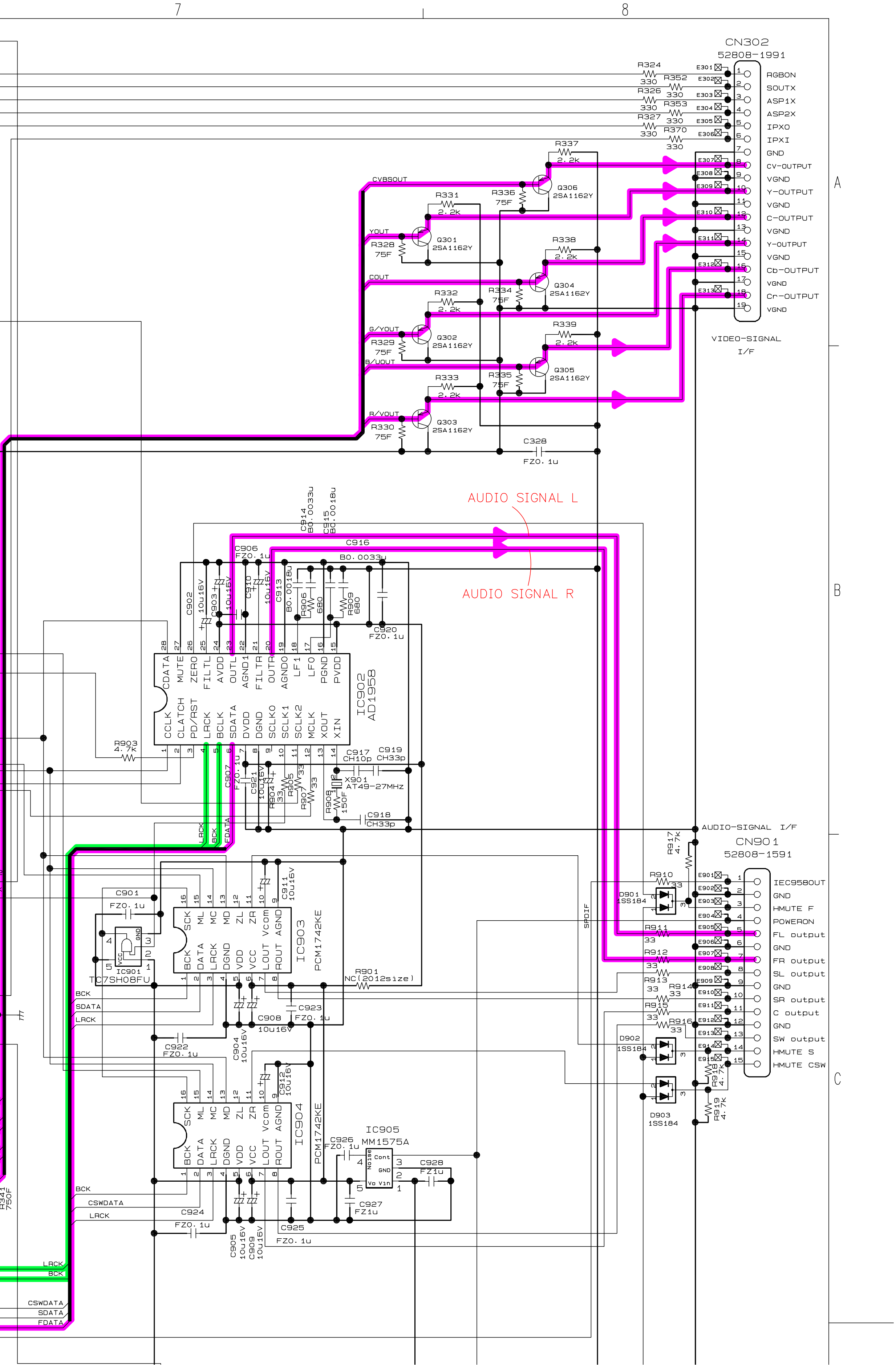
Fig. 3-5-5

5-3-2. Main Circuit Diagram


1
2
A
B
C
LASER DRIVE SIGNAL
PICKUP ERROR SIGNAL
TRAY CONTROL SIGNAL
FOCUS SERVO SIGNAL
TRACKING SERVO SIGNAL
R523 4.7k
R527 10k
R528 91
Q505
HN1C03F
Q504
RN1402
R526 10k
R529 91
R539 47k
R510 10
HN1B01F
Q501
R507 47k
C508 FZ1u
C510 FZ0.1u
R512 47k
E534
E536
A+5V
A+3V
AGND
R519 NC
R525 5.6k
C513 BK0.001u
R545 10k
R536 100k
E201
C526 BK0.001u
C528 BK0.001u
C530 CH220p
RFCT
TP504
PU-HEAD-I/F
CN501
52808-2391
VCC
RF
LD2
MON2
VOR2
GND
VREF
VCC
FO
EO
AO
DO
CO
BO
F+
T-
T+
F-
VCC
GND
LD
MON
VOR
C543 FZ0.1u
R505 3.3
R557 4.7
E535
C539 FZ2.2u
C503 FZ0.1u
R547
R502 4.7
C504 4.7
R503
C519 FZ0.1u
C532 FZ2.2u
R504 NC
R506 2.2M
R551 2.2M
R501 NC
C502 FZ0.1u
D501 1SS368
D502 1SS368
T+
T-
F+
F-
Q502
HN1B01F
R552 3.3
R553 10
R554 47k
R555 47k
C541 FZ0.1u
C542 FZ1u
R556 47k
C506 NC
C505 NC
IC501 NC
TP501
FG
E585
E584
E559
IC502
TA1323F
P1FN
P1FP
LDP1
P1DI
P1CI
P1BI
P1AI
GNDR
LDP2
P2AI
P2BI
P2CI
P2DI
GNDS
P2FP
P2FN
P1TP
P1TN
LDO1
MDI1
EQF
EQB
VrA
RFDC
TCC1
GND2
NC
NC
Vcc2
DPDB
FEB
TEB
RFS
VccR
RFOp
RFOn
RPP
RPB
RPO
RPZ
NC
VccS
DFTN
FEO
TEO
LVL
VccP
VCKF
GNDP
P2TP
P2TN
LDO2
MDI2
VrD
Vrfil
Vdd
DPAC
DPBD
DPD1
DPD2
SCB
SCL
SCD
VRCK
R535 4.7k
TP502
R522 0
R508 1k
C517 SL330p
C533 FZ0.1u
C534 FZ0.1u
C529 FZ0.1u
C527 FZ0.1u
C518 100U6.3V
C516 FZ2.2u
C520 FZ2.2u
C522 FZ1u
C523 FZ1u
C524 BK0.001u
C525 BK0.001u
VCC+5V2
JP501
R546 3.3k
R542 10k
TP503
RFSB
E545
VDD+3V3
R401 3.3k
C402 NC
R403 0
VREFD
TP40
C401 SL330p
C403 BK0.1u
C405 FZ0.1u
TRY-I/F 5700.7700
CN502
6207-3217
GND
LDMP
TOPN
LDMN
TCLS
NC
0.47(3225)
R524
R533 10k
R531 4.7kF
R534 6.2k
R532 4.7kF
R530 33kF
R537 33kF
IC504
TA75S01F
C521 FZ0.1u
BA5813FM
IC503
VO1(+)
VO1(-)
VO2(+)
VO2(-)
VOL(+)
VOL(-)
POWVcc12
PREVcc
IN2
IN1
MUTE1
LDCONT
REV
FWD
VO4(+)
VO4(-)
VO3(+)
VO3(-)
GND
POWVcc34
MUTE2
IN3
IN4
RGND
REG-P
REG-B
RVcc
BIAS
C504 FZ2.2u
R520 100
R521 10k
R514 2kF
R515 2.2kF
DMO
FMO
R538 2.2k
Q506
2SC3326B
R540 47k
R541 10k
Q503
2SA1213Y
C511 BK0.1u
R513
C512 BK0.1u
TRO
R517 100
R518 100
R511 820F
R509 1.5kF
C514 100U6.3V
R516 4.7
C515 BK0.1u
Q401
2SC3326B
R402 22k
E402
DISC-MOTER-I/F
CN503
52808-0891
FMN
FMP
GND
LMT
DMN
DMP
VCC
DMFG
C507 FZ2.2u
C509 FZ0.1u
E504


3
4
TC94A03F
IC401
M11B11664A-30T
IC402
FOCUS ERROR
TRACKING ERROR
FEED MOTOR
SERVO SIGNAL
DISC MOTOR
SERVO SIGNAL
FEI
TEI
FOO
TRO
VREFD
RFCT
TP504
TP408
RFRP
TP403
RFCD
RFSD
TP404
TP405 FE
TP406 TE
TP401
TP402
TP407
TP409
TP410
TP411
TP412
TP413
TP414
Q401
2SC3326B
R402
22k
R401
3.3k
C401
SL330p
J301
NC
EJTAG I/F
2.54mm pitch
R303
33
DVDSTB
DVDVALID
DVDSOS
DVDERR
DVDDAT[7]
DVDDAT[6]
DVDDAT[5]
DVDDAT[4]
DVDDAT[3]
DVDDAT[2]
DVDDAT[1]
DVDDAT[0]
DPA[8-0]
D+3V
C330
FZ0.1u
C301
FZ0.1u
C303
FZ0.1u
C304
R357
4.7k
R314
10k
R306
1k
R311
3.3k
R312
3.3k
R315
4.7k
DVDSOS
DVDSTB
GNDP
VDDP
TRAY
TCLS
ADFLG
FPCDOUT
FPCDIN
DSPCLK
DSTBX
DECCSX
EJTCK
EJTMS
EJTDO
EJTRST
NVMALE
NVMCLE
NVMCE1
NVMCEX
NVMREX
NVMWEX
NVMRBX
NVMRB1
NVMCD
NVMWPX
VDDC
GNDC


5
6
C330
FZ0.1u
C331
FZ0.1u
HD[0]
HD[1]
HD[2]
HD[3]
HD[4]
HD[5]
HD[6]
HD[7]
IC312
TC74VHCT244AFT
IC313
TC74VHCT244AFT
VCC
2G_B
1Y1
2A4
1Y2
2A3
1Y3
2A2
1Y4
2A1
1G_B
1A1
2Y4
1A2
2Y3
1A3
2Y2
1A4
2Y1
GND
D[0]
D[1]
D[2]
D[3]
D[4]
D[5]
D[6]
D[7]
R348
1k
JP301
JP
Q307
RN1402
R361
1k
JP301
OPEN : FLASH
CLOSE : DEBUG
C317
FZ0.1u
R359
4.7k
R360
4.7k
R358
4.7k
R340
1k
R372
100
C316
FZ0.1u
R373
100
R371
100
R363
4.7k
R343
1k
R309
100
C309
FZ0.1u
R357
4.7k
E316
E315
R319
100
R321
1k
C319
BK0.001u
C322
BK0.001u
R322
2.2K
C320
FZ0.1u
E331
R369
2K
R368
2K
C329
FZ0.1u
R379
0
C337
FZ0.1u
C321
100u6.3V
R320
NC
R341
750F
E320
E321
E323
E324
E337
DVDSOS
DVDSTB
4448X/SSCTX
GNDP
X2FS
X4FS/SSCIRQ
AMPON/SSCRX
VDDP
INTDACX
LSADVD/SSCRDY
PLLCSX/ATIORDY
PUHOME
TRAY
TCLS
TOS/COAX
ADFLG
BRATE1
BRATE0
FPCDOUT
VDDP
FPCDIN
GNDP
DSPCLK
DSTBX
PUDET1
DECCSX
PLLCFGA
PLLCFGP
EJTCK
EJTMS
EJTDO
EJTDI
EJTRST
VDDP
NVMALE
GNDP
NVMCLE
NVMCE1X
NVMCEX
NVMREX
NVMWEX
NVMRBX
NVMRB1X
NVMCD
NVMWPX
NVMDA0
NVMDA5
VDDC
GNDC
NVMDA6
NVMDA7
XO
VDDP
GCLKA
TESTMODE
GNDDAC
SBADD
FCSERR
PUDET2
VDDDAC
GNDC
VDDC
AIN1
IPXI
GNDP
I2CDAT
I2CCLK
VDDP
DISKWDI
STBYX
VREF
GNDDACSB
GNDDAC
RSET
B/UOUT
VDDDAC
R/VOUT
G/YOUT
VDDDAC
CVBSOUT
YOUT
VDDDAC
COUT
GNDDAC
GNDDAC
GNDDAC
VDDPA2
AMCLK
GNDPA2
ALRCLKI
ABCLKI
ALRCKO
ABCLKO
AOUT4
AOUT3
AOUT2
AOUT1
AOUT0
SPDIF
COSYNC
GNDP
DVDDAT1
DVDERR
DVDDAT5
DVDDAT3
DVDREQ
DVDVALD
DVDDAT7
DVDDAT0
DVDDAT2
DVDDAT4
DVDDAT6
VDDP
LDMP
GNDP
HACK1X
HACKX
HRDX
HWRX
SVCEX
HA1
HA2
HCS1X
SVINTX
HA3
HD0
HD1
HIRQ1X
HD2
GNDC
VDDC
HD3
HD4
HD5
HD6
VDDP
HD7
GNDP
PLLSEL0
BOOTSEL0
BOOTSEL1
BOOTSEL2
RGBON
DACS0X
G+6DB
DACS1X
SPIDATI
SPIDATO
SPICLK
VDDA
GNDA
RESETX
VDDA
GCLKP
GNDP
B/UOUT
R/VOUT
G/YOUT
CVBSOUT
YOUT
COUT
BCK
SDATA
LRCK
BCK
CSWDATA
LRCK
BCK
CSWDATA
SDATA
FDATA
SPDIF
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
A
B
C
D
E
F
G
H
J
K
L
M
N
P


7
8
A
B
C
CN302
52808-1991
R324
330
R352
330
R326
330
R353
330
R327
330
R370
330
E301
E302
E303
E304
E305
E306
E307
E308
E309
E310
E311
E312
E313
RGBON
SOUTX
ASP1X
ASP2X
IPXO
IPXI
GND
CV-OUTPUT
VGND
Y-OUTPUT
VGND
C-OUTPUT
VGND
Y-OUTPUT
VGND
Cb-OUTPUT
VGND
Cr-OUTPUT
VGND
VIDEO-SIGNAL
I/F
R337
2.2k
CVBSOUT
Q306
2SA1162Y
R336
75F
R331
2.2k
YOUT
Q301
2SA1162Y
R328
75F
R338
2.2k
COUT
Q304
2SA1162Y
R334
75F
R332
2.2k
G/YOUT
Q302
2SA1162Y
R329
75F
R339
2.2k
B/UOUT
Q305
2SA1162Y
R335
75F
R333
2.2k
R/VOUT
Q303
2SA1162Y
R330
75F
C328
FZ0.1u
AUDIO SIGNAL L
AUDIO SIGNAL R
C914
B0.0033u
C915
B0.0018u
C916
B0.0033u
C906
FZ0.1u
C902
10u16V
C903
10u16V
C910
10u16V
C913
B0.0018u
R906
680
R909
680
C920
FZ0.1u
IC902
AD1958
CDATA
MUTE
ZERO
FILTL
AVDD
OUTL
AGND1
FILTR
OUTR
AGND0
LF1
LF0
PGND
PVDD
CCLK
CLATCH
PD/RST
LRCK
BCLK
SDATA
DVDD
DGND
SCLK0
SCLK1
SCLK2
MCLK
XOUT
XIN
R903
4.7k
C907
FZ0.1u
C921
10u16V
R904
33
R905
33
R907
33
R908
150F
C917
CH10p
C919
CH33p
X901
AT49-27MHz
C918
CH33p
LRCK
BCK
FDATA
AUDIO-SIGNAL I/F
CN901
52808-1591
R917
4.7k
R910
33
D901
1SS184
R911
33
R912
33
R913
33
R914
33
R915
33
R916
33
D902
1SS184
D903
1SS184
R918
4.7k
R919
4.7k
E901
E902
E903
E904
E905
E906
E907
E908
E909
E910
E911
E912
E913
E914
E915
IEC958OUT
GND
HMUTE F
POWERON
FL output
GND
FR output
SL output
GND
SR output
C output
GND
SW output
HMUTE S
HMUTE CSW
SPDIF
C901
FZ0.1u
IC901
TC7SH08FU
VCC
GND
C911
10u16V
IC903
PCM1742KE
SCK
ML
MC
MD
ZL
ZR
Vcom
AGND
BCK
DATA
LRCK
DGND
VDD
VCC
LOUT
ROUT
R901
NC(2012size)
BCK
SDATA
LRCK
C908
10u16V
C923
FZ0.1u
C922
FZ0.1u
C904
10u16V
C912
10u16V
IC904
PCM1742KE
IC905
MM1575A
C926
FZ0.1u
Noise
Cont
GND
Vo
Vin
C928
FZ1u
C927
FZ1u
BCK
CSWDATA
LRCK
C924
FZ0.1u
C905
10u16V
C909
10u16V
C925
FZ0.1u
R341
750F
LRCK
BCK
CSWDATA
SDATA
FDATA

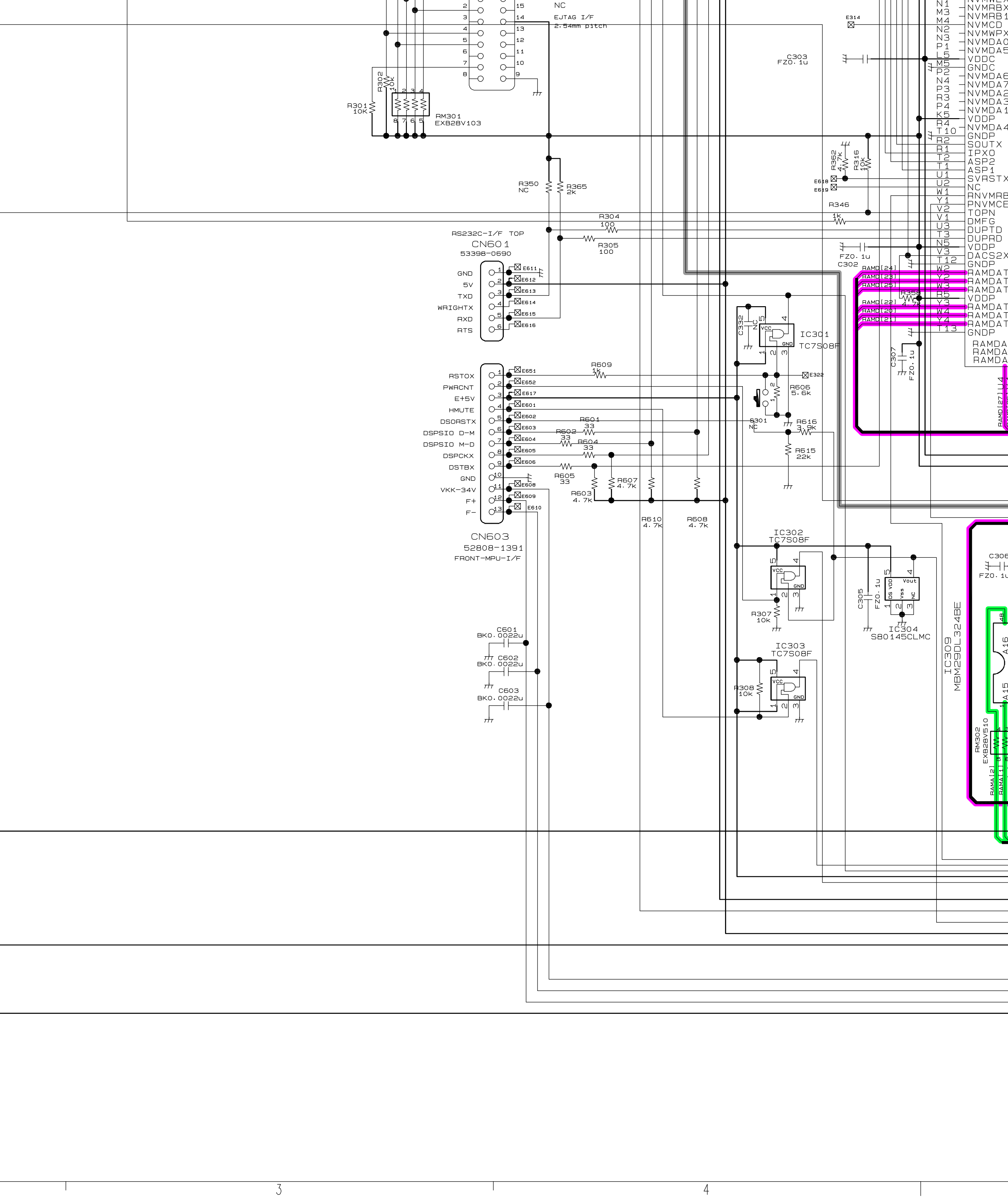
D

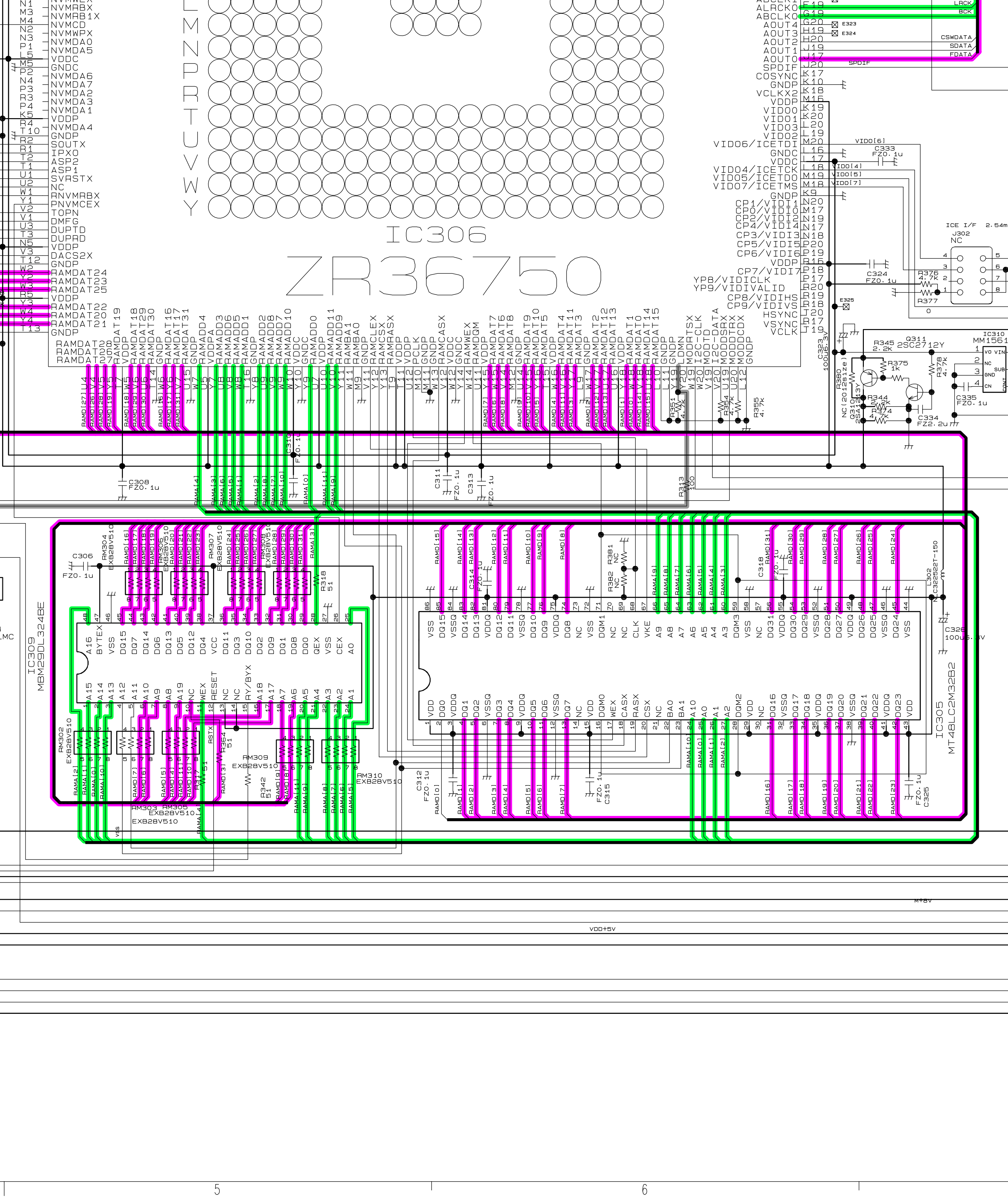
	SD3800	SD4800
CN901	52808-0791	52808-1591
D902	NC	1SS184
D903	NC	1SS184
R913	NC	33
R914	NC	33
R915	NC	33
R916	NC	33
R918	NC	4.7k
R919	NC	4.7k
IC901	NC	TC7SH08FU
C901	NC	FZ0.1u
IC903	NC	PCM1742KE
IC904	NC	PCM1742KE
C904	NC	10u16V
C905	NC	10u16V
C908	NC	10u16V
C909	NC	10u16V
C911	NC	10u16V
C912	NC	10u16V
C922	NC	FZ0.1u
C923	NC	FZ0.1u
C924	NC	FZ0.1u
C925	NC	FZ0.1u
IC308	NC	S24C02AFJ
IC905	NC	MM1575A
C926	NC	FZ0.1u
C927	NC	FZ1u
C928	NC	FZ1u

E

F

1 2


NC
EJTAG I/F
2.54mm pitch
R302
10k
R301
10K
RM301
EXB28V103
R350
NC
R365
2k
R304
100
R305
100
RS232C-I/F TOP
CN601
53398-0690
GND
5V
TXD
WRIGHTX
RXD
RTS
E611
E612
E613
E614
E615
E616
RSTOX
PWRCNT
E+5V
HMUTE
DSORSTX
DSPSIO D-M
DSPSIO M-D
DSPCKX
DSTBX
GND
VKK-34V
F+
F-
E651
E652
E617
E601
E602
E603
E604
E605
E606
E608
E609
E610
R609
1k
R601
33
R602
33
R604
33
R605
33
R603
4.7k
R607
4.7k
R610
4.7k
R608
4.7k
CN603
52808-1391
FRONT-MPU-I/F
C601
BK0.0022u
C602
BK0.0022u
C603
BK0.0022u
C332
NC
IC301
TC7S08F
E322
R606
5.6k
S301
NC
R616
3.9k
R615
22k
IC302
TC7S08F
R307
10k
C305
FZ0.1u
IC304
S80145CLMC
IC303
TC7S08F
R308
10k
E314
C303
FZ0.1u
R362
4.7k
R316
10k
E618
E619
R346
1k
FZ0.1u
C302
C307
FZ0.1u
R358
4.7k
RAMD[24]
RAMD[23]
RAMD[25]
RAMD[22]
RAMD[20]
RAMD[21]
RAMD[27]
N1
M3
M4
N2
N3
P1
L5
M5
P2
N4
P3
R3
P4
K5
R4
T10
R2
R1
T2
T1
U1
U2
W1
Y1
V2
V1
U3
T3
N5
V3
T12
W2
Y2
W3
R5
Y3
W4
Y4
T13
U4
NVMRBX
NVMRB1
NVMCD
NVMWPX
NVMDA0
NVMDA5
VDDC
GNDC
NVMDA6
NVMDA7
NVMDA2
NVMDA3
NVMDA1
VDDP
NVMDA4
GNDP
SOUTX
IPX0
ASP2
ASP1
SVRSTX
NC
RNVMRB
PNVMCE
TOPN
DMFG
DUPTD
DUPRD
VDDP
DACS2X
GNDP
RAMDAT
RAMDAT
RAMDAT
VDDP
RAMDAT
RAMDAT
RAMDAT
GNDP
RAMDA
RAMDA
RAMDA
C306
FZ0.1u
IC309
MBM29DL324BE
A16
A15
48
RM302
EXB28V510
RAMA[2]
RAMA[1]
3
4


IC306
ZR36750
IC305
MT48LC2M32B2
IC309
MBM29DL324BE
IC310
MM1561
J302
ICE I/F
NC
Q311
2SC2712Y
Q310
2SA1213Y
L302
RM302
EXB28V510
RM303
RM304
RM305
RM306
RM307
RM308
RM309
RM310
R313
100
R318
51
R342
51
R364
51
R317
51
R345
2.2K
R375
1K
R376
4.7K
R377
R378
4.7K
R351
4.7K
R354
4.7K
R355
4.7K
R380
NC(2012size)
R381
NC
R382
NC
C306
FZ0.1u
C308
FZ0.1u
C310
FZ0.1u
C311
FZ0.1u
C312
FZ0.1u
C313
FZ0.1u
C314
FZ0.1u
C315
FZ0.1u
C318
FZ0.1u
C323
100u6.3V
C324
FZ0.1u
C325
FZ0.1u
C326
100u6.3V
C333
FZ0.1u
C334
FZ2.2u
C335
FZ0.1u
E323
E324
E325
LRCK
BCK
CSWDATA
SDATA
FDATA
SPDIF
VIDO[6]
VIDO[4]
VIDO[5]
VIDO[7]
M+8V
VDD+5V
5
6

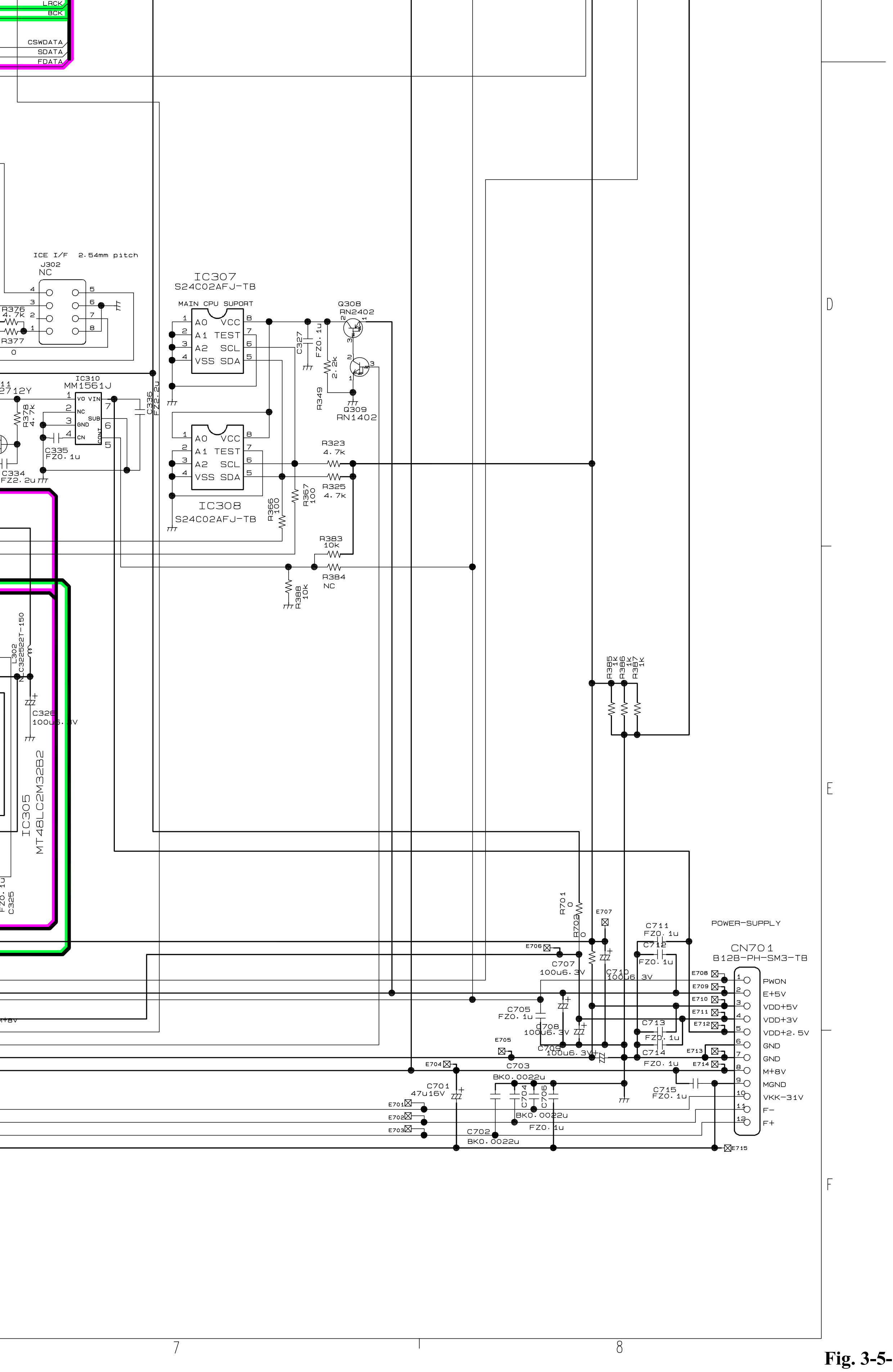
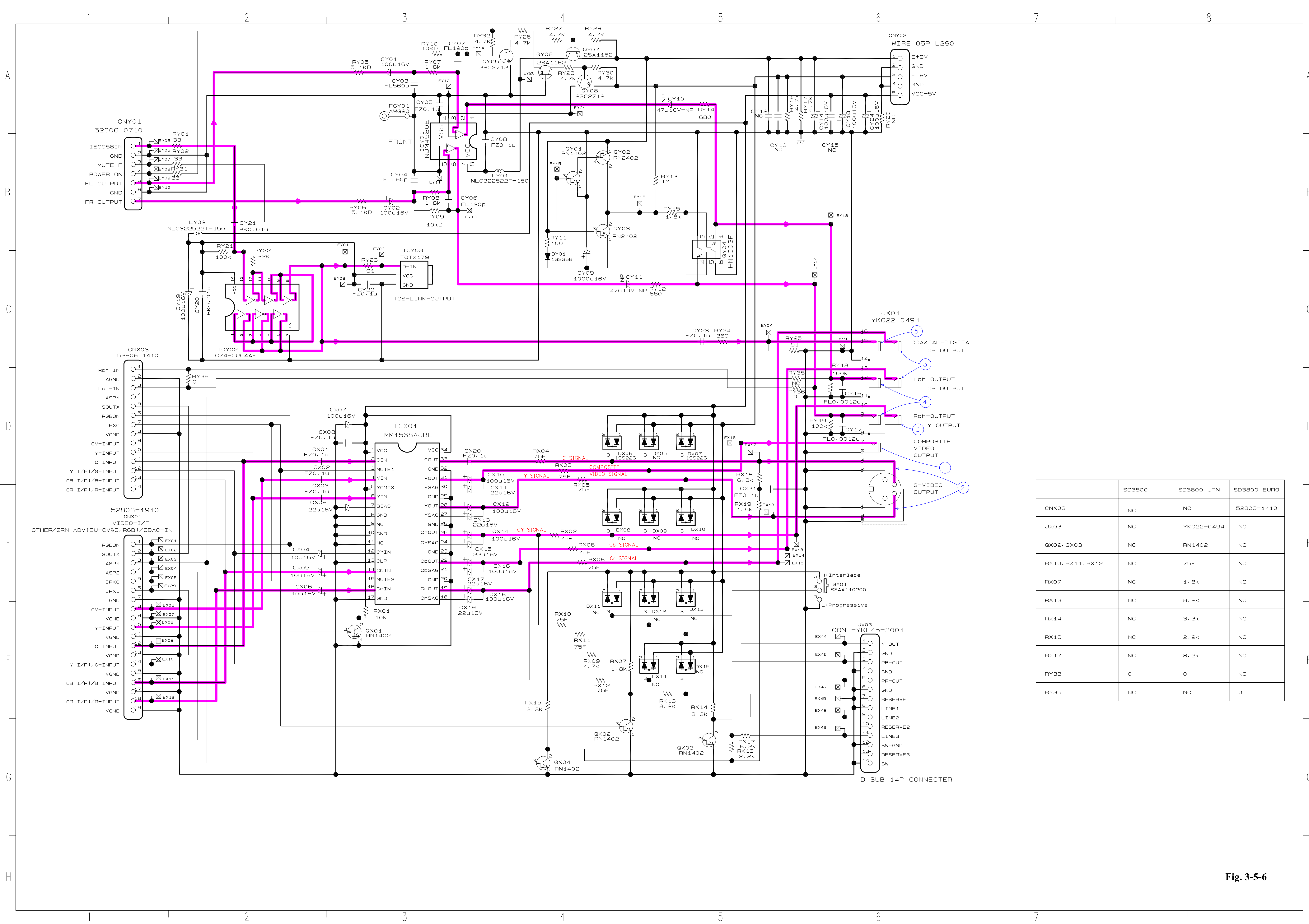

LRCK
BCK
CSWDATA
SDATA
FDATA
ICE I/F 2.54mm pitch
J302
NC
R376
4.7k
R377
0
IC307
S24C02AFJ-TB
MAIN CPU SUPORT
A0 VCC
A1 TEST
A2 SCL
VSS SDA
C327
FZ0.1u
Q308
RN2402
R349
2.2k
Q309
RN1402
IC310
MM1561J
VO VIN
NC
GND
SUB
CN
CONT
R378
4.7k
C336
FZ2.2u
C335
FZ0.1u
C334
FZ2.2u
IC308
S24C02AFJ-TB
R323
4.7k
R325
4.7k
R366
100
R367
100
R383
10k
R384
NC
R388
10k
L302
NC322522T-150
C326
100u6.3V
IC305
MT48LC2M32B2
FZ0.1u
C325
R385
1k
R386
1k
R387
1k
R701
0
R702
0
E707
E706
C707
100u6.3V
C710
100u6.3V
C711
FZ0.1u
C712
FZ0.1u
POWER-SUPPLY
CN701
B12B-PH-SM3-TB
E708
E709
E710
E711
E712
E713
E714
E715
PWON
E+5V
VDD+5V
VDD+3V
VDD+2.5V
GND
GND
M+8V
MGND
VKK-31V
F-
F+
C705
FZ0.1u
C708
100u6.3V
C709
100u6.3V
C713
FZ0.1u
C714
FZ0.1u
C715
FZ0.1u
E705
E704
C703
BK0.0022u
C701
47u16V
C704
C706
BK0.0022u
FZ0.1u
E701
E702
E703
C702
BK0.0022u
M+8V
D
E
F
7
8

Fig. 3-5-5

5-4. Output Circuit Diagram

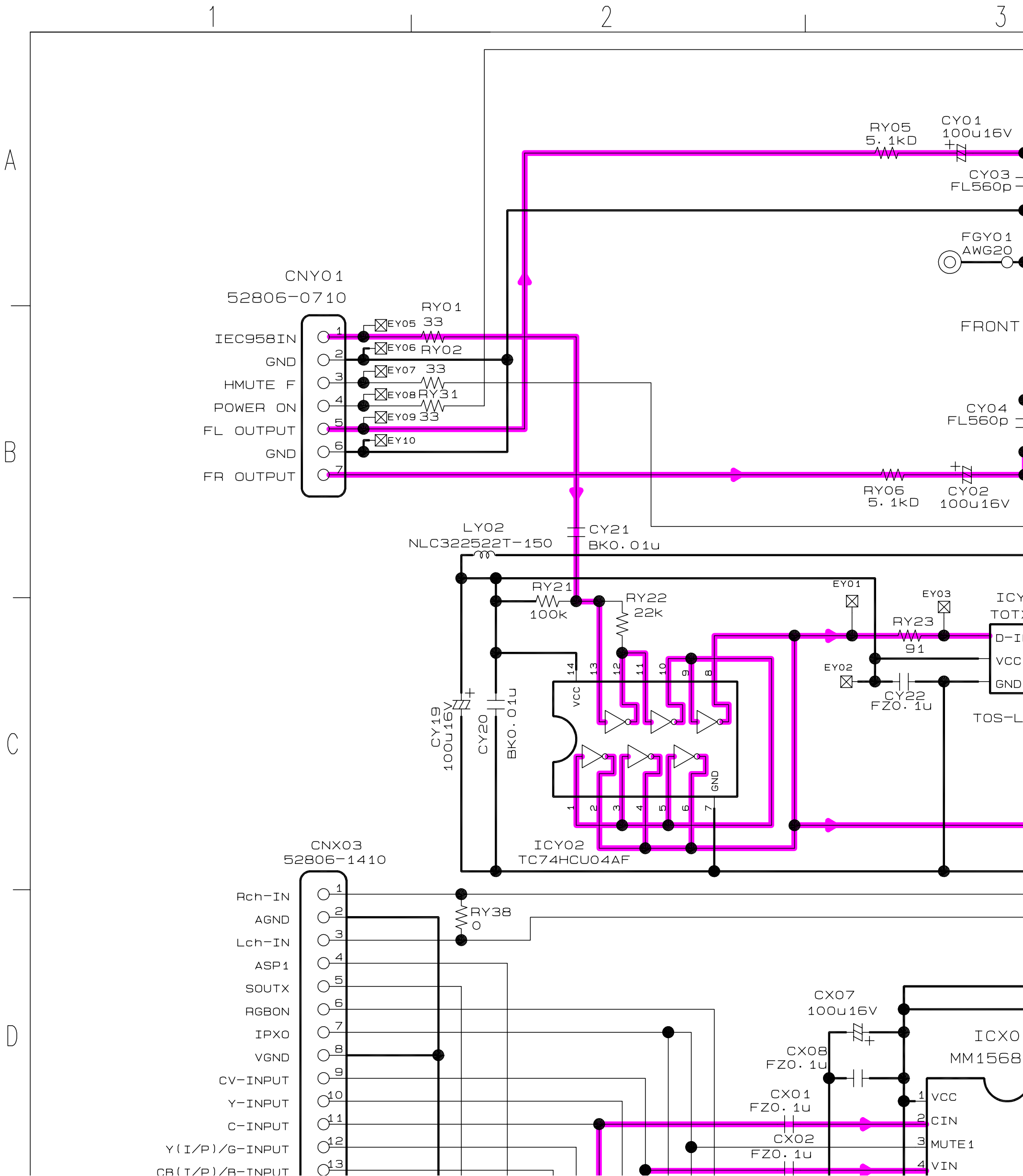


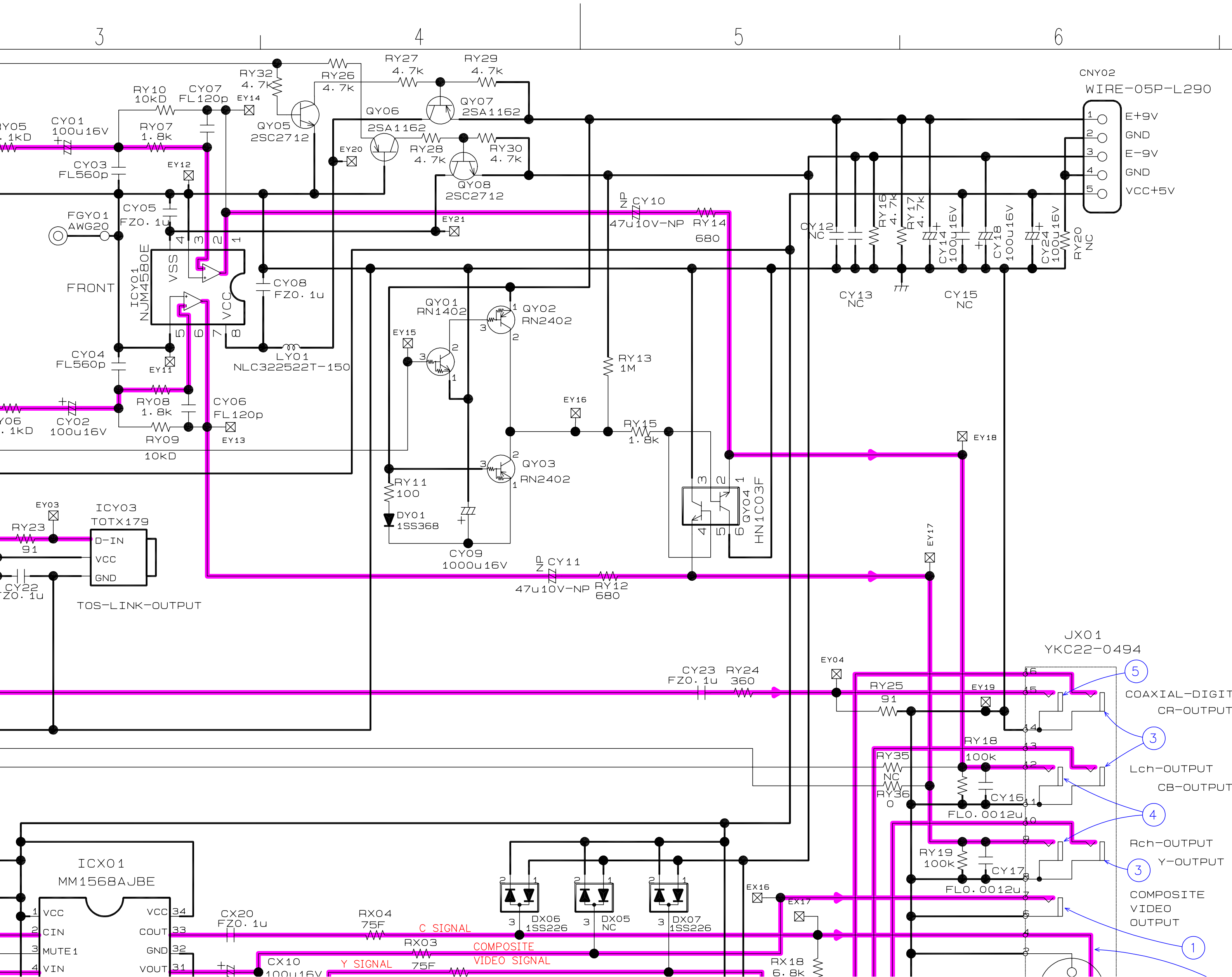
CNY01
52806-0710
IEC958IN
GND
HMUTE F
POWER ON
FL OUTPUT
GND
FR OUTPUT
RY01 33
RY02
RY07 33
RY31
RY09 33
RY05 5.1kD
CY01 100u16V
RY10 10KD
CY07 FL120p
RY07 1.8k
RY32 4.7k
RY26 4.7k
RY27 4.7k
RY29 4.7k
QY05 2SC2712
QY06 2SA1162
QY07 2SA1162
QY08 2SC2712
RY28 4.7k
RY30 4.7k
CY03 FL560p
FGY01 AWG20
CY05 FZ0.1u
ICY01 NJM4580E
FRONT
CY08 FZ0.1u
CY04 FL560p
LY01 NLC322522T-150
RY08 1.8k
CY06 FL120p
RY06 5.1kD
CY02 100u16V
RY09 10kD
CY10 47u10V-NP
RY14 680
QY01 RN1402
QY02 RN2402
QY03 RN2402
RY13 1M
RY15 1.8k
RY11 100
DY01 1SS368
CY09 1000u16V
CY11 47u10V-NP
RY12 680
QY04 HN1C03F
CNY02
WIRE-05P-L290
E+9V
GND
E-9V
GND
VCC+5V
CY12 NC
CY13 NC
RY16 4.7k
RY17 4.7k
CY14 100u16V
CY15 NC
CY18 100u16V
CY24 100u16V
RY20 NC
LY02 NLC322522T-150
CY21 BK0.01u
RY21 100k
RY22 22k
RY23 91
ICY03 TOTX179
D-IN
VCC
GND
CY22 FZ0.1u
TOS-LINK-OUTPUT
CY19 100u16V
CY20 BK0.01u
ICY02 TC74HCU04AF
CY23 FZ0.1u
RY24 360
RY25 91
JX01 YKC22-0494
COAXIAL-DIGITAL
CR-OUTPUT
Lch-OUTPUT
CB-OUTPUT
Rch-OUTPUT
Y-OUTPUT
COMPOSITE VIDEO OUTPUT
S-VIDEO OUTPUT
RY35 NC
RY36 0
RY18 100k
CY16 FL0.0012u
RY19 100k
CY17 FL0.0012u
CNX03
52806-1410
Rch-IN
AGND
Lch-IN
ASP1
SOUTX
RGBON
IPXO
VGND
CV-INPUT
Y-INPUT
C-INPUT
Y(I/P)/G-INPUT
CB(I/P)/B-INPUT
CR(I/P)/R-INPUT
RY38 0
52806-1910
CNX01
VIDEO-I/F
OTHER/ZRN.ADV(EU-CV&S/RGB)/6DAC-IN
RGBON
SOUTX
ASP1
ASP2
IPXO
IPXI
GND
CV-INPUT
VGND
Y-INPUT
VGND
C-INPUT
VGND
Y(I/P)/G-INPUT
VGND
CB(I/P)/B-INPUT
VGND
CR(I/P)/R-INPUT
VGND
ICX01
MM1568AJBE
CX07 100u16V
CX08 FZ0.1u
CX01 FZ0.1u
CX02 FZ0.1u
CX03 FZ0.1u
CX09 22u16V
CX04 10u16V
CX05 10u16V
CX06 10u16V
VCC
CIN
MUTE1
VIN
YCMIX
YIN
BIAS
GND
NC
GND
NC
CYIN
CLP
CbIN
MUTE2
CrIN
GND
VCC
COUT
GND
VOUT
VSAG
GND
YOUT
YSAG
GND
CYOUT
GND
CbOUT
CbSAG
GND
CrOUT
CrSAG
CX20 FZ0.1u
CX10 100u16V
CX11 22u16V
CX12 100u16V
CX13 22u16V
CX14 100u16V
CX15 22u16V
CX16 100u16V
CX17 22u16V
CX18 100u16V
CX19 22u16V
RX01 10k
QX01 RN1402
RX04 75F
RX03 75F
RX05 75F
RX02 75F
RX06 75F
RX08 75F
C SIGNAL
COMPOSITE VIDEO SIGNAL
Y SIGNAL
CY SIGNAL
Cb SIGNAL
Cr SIGNAL
DX06 1SS226
DX05 NC
DX07 1SS226
DX08
DX09 NC
DX10 NC
DX11 NC
DX12 NC
DX13 NC
DX14 NC
DX15 NC
RX18 6.8k
CX21 FZ0.1u
RX19 1.5k
RX10 75F
RX11 75F
RX09 4.7k
RX07 1.8k
RX12 75F
RX13 8.2k
RX14 3.3k
RX15 3.3k
RX17 8.2k
RX16 2.2k
QX02 RN1402
QX03 RN1402
QX04 RN1402
H:Interlace
SX01 SSAA110200
L:Progressive
JX03
CONE-YKF45-3001
Y-OUT
GND
PB-OUT
GND
PR-OUT
GND
RESERVE
LINE1
LINE2
RESERVE2
LINE3
SW-GND
RESERVE3
SW
D-SUB-14P-CONNECTER
1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H

	SD3800	SD3800 JPN	SD3800 EURO
CNX03	NC	NC	52806-1410
JX03	NC	YKC22-0494	NC
QX02, QX03	NC	RN1402	NC
RX10, RX11, RX12	NC	75F	NC
RX07	NC	1.8k	NC
RX13	NC	8.2k	NC
RX14	NC	3.3k	NC
RX16	NC	2.2k	NC
RX17	NC	8.2k	NC
RY38	0	0	NC
RY35	NC	NC	0

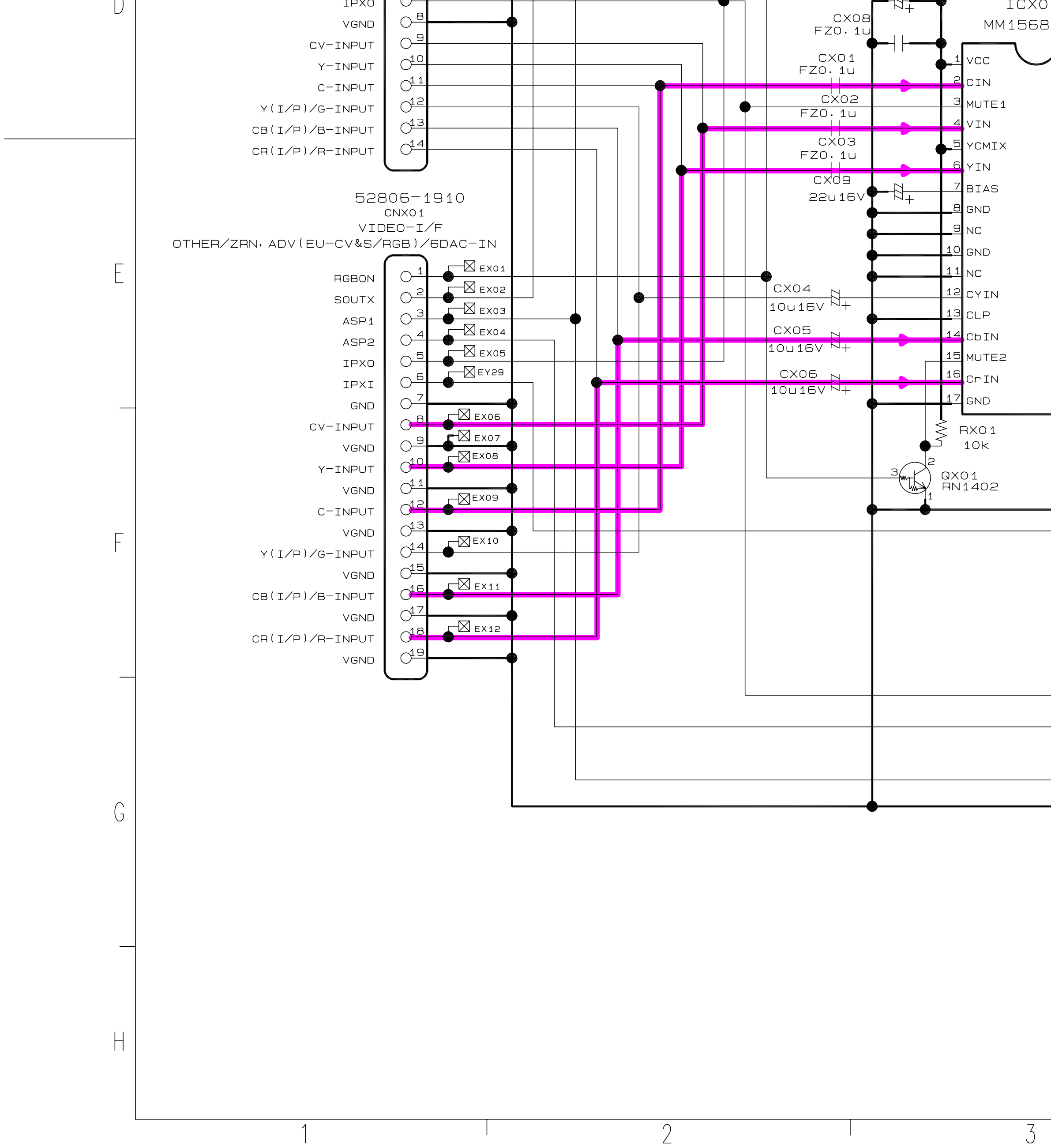
Fig. 3-5-6

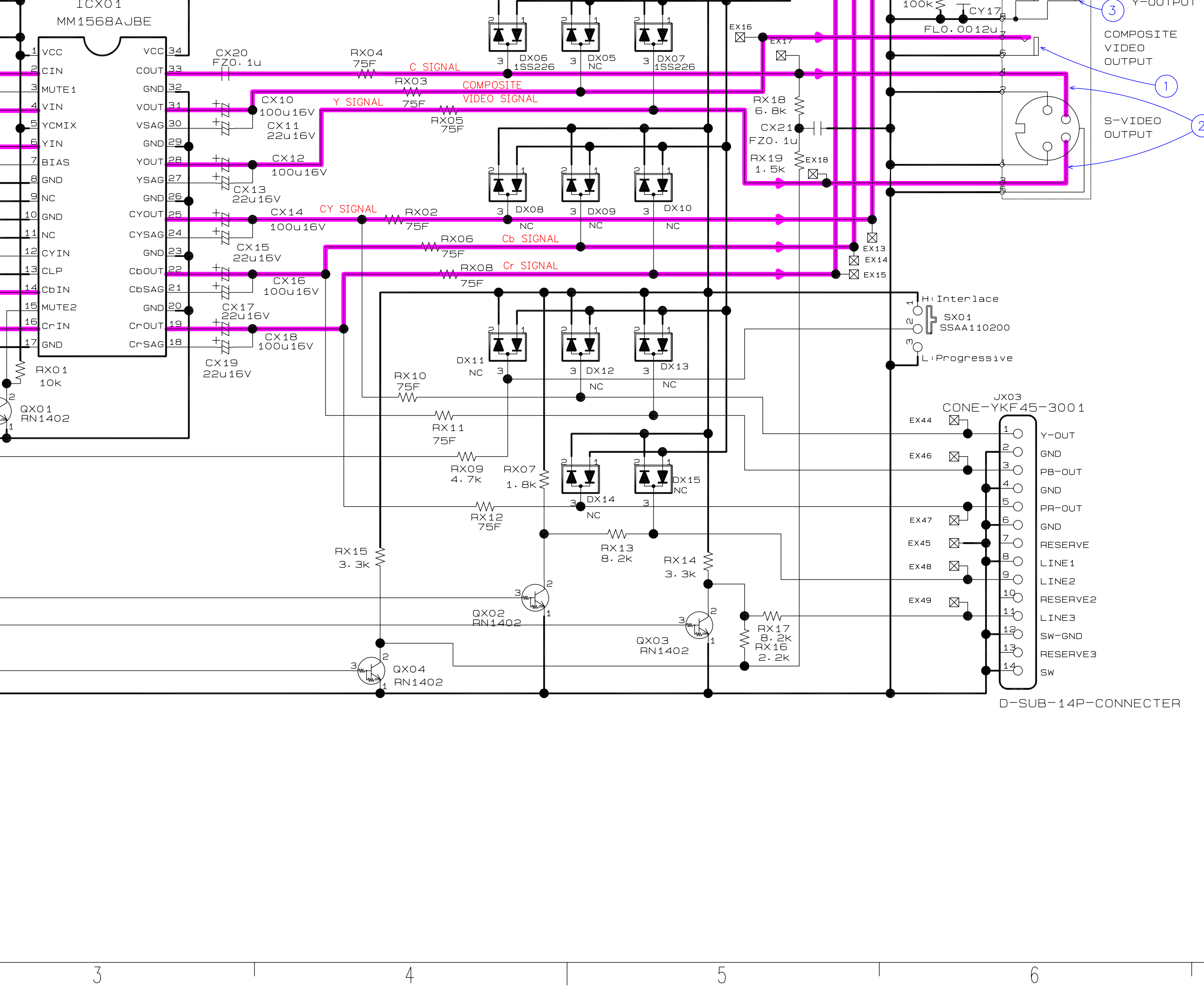
5-4. Output Circuit Diagram

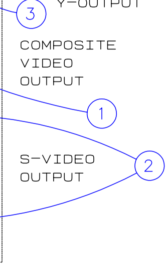

1
2
3
A
B
C
D
RY05
5.1kD
CY01
100u16V
CY03
FL560p
FGY01
AWG20
FRONT
CNY01
52806-0710
RY01
33
EY05
EY06
RY02
EY07
33
EY08
RY31
EY09
33
EY10
IEC958IN
GND
HMUTE F
POWER ON
FL OUTPUT
GND
FR OUTPUT
CY04
FL560p
RY06
5.1kD
CY02
100u16V
LY02
NLC322522T-150
CY21
BK0.01u
RY21
100k
RY22
22k
EY01
EY03
ICY
TOT
RY23
91
D-I
VCC
GND
EY02
CY22
FZ0.1u
TOS-L
CY19
100u16V
CY20
BK0.01u
VCC
GND
ICY02
TC74HCU04AF
CNX03
52806-1410
RY38
0
Rch-IN
AGND
Lch-IN
ASP1
SOUTX
RGBON
IPX0
VGND
CV-INPUT
Y-INPUT
C-INPUT
Y(I/P)/G-INPUT
CB(I/P)/B-INPUT
CX07
100u16V
CX08
FZ0.1u
CX01
FZ0.1u
CX02
FZ0.1u
ICX0
MM1568
VCC
CIN
MUTE1
VIN


3
4
5
6
RY32 4.7k
RY26 4.7k
RY27 4.7k
RY29 4.7k
QY07 2SA1162
QY06 2SA1162
QY05 2SC2712
QY08 2SC2712
RY28 4.7k
RY30 4.7k
RY10 10kD
CY07 FL120p
EY14
RY05 .1kD
CY01 100u16V
RY07 1.8k
CY03 FL560p
EY12
EY20
FGY01 AWG20
CY05 FZ0.1u
EY21
NP CY10 47u10V-NP
RY14 680
CNY02 WIRE-05P-L290
E+9V
GND
E-9V
GND
VCC+5V
CY12 NC
RY16 4.7k
RY17 4.7k
CY14 100u16V
CY18 100u16V
CY24 100u16V
RY20 NC
CY13 NC
CY15 NC
FRONT
ICY01 NJM4580E
VSS
VCC
CY08 FZ0.1u
LY01 NLC322522T-150
QY01 RN1402
QY02 RN2402
EY15
CY04 FL560p
EY11
RY08 1.8k
CY06 FL120p
RY06 .1kD
CY02 100u16V
RY09 10kD
EY13
RY13 1M
EY16
RY15 1.8k
EY18
QY03 RN2402
RY11 100
DY01 1SS368
QY04 HN1C03F
CY09 1000u16V
EY03
ICY03 TOTX179
RY23 91
D-IN
VCC
GND
CY22 FZ0.1u
TOS-LINK-OUTPUT
NP CY11 47u10V-NP
RY12 680
EY17
JX01 YKC22-0494
CY23 FZ0.1u
RY24 360
EY04
RY25 91
EY19
COAXIAL-DIGIT
CR-OUTPUT
RY18 100k
RY35 NC
RY36 0
CY16 FL0.0012u
Lch-OUTPUT
CB-OUTPUT
Rch-OUTPUT
Y-OUTPUT
RY19 100K
CY17 FL0.0012u
COMPOSITE VIDEO OUTPUT
① ③ ④ ⑤
ICX01 MM1568AJBE
VCC
CIN
MUTE1
VIN
VCC
COUT
GND
VOUT
CX20 FZ0.1u
RX04 75F
C SIGNAL
RX03 75F
COMPOSITE VIDEO SIGNAL
Y SIGNAL
CX10 100u16V
DX06 1SS226
DX05 NC
DX07 1SS226
EX16
EX17
RX18 6.8k

7
8
A
B
C
D
E-05P-L290
E+9V
GND
E-9V
GND
VCC+5V
494
5
COAXIAL-DIGITAL
CR-OUTPUT
3
Lch-OUTPUT
CB-OUTPUT
4
Rch-OUTPUT
Y-OUTPUT
3
COMPOSITE
VIDEO
OUTPUT
1


D
IPX0
VGND
CV-INPUT
Y-INPUT
C-INPUT
Y(I/P)/G-INPUT
CB(I/P)/B-INPUT
CR(I/P)/R-INPUT
8
9
10
11
12
13
14
52806-1910
CNX01
VIDEO-I/F
OTHER/ZRN, ADV(EU-CV&S/RGB)/6DAC-IN
E
RGBON
SOUTX
ASP1
ASP2
IPX0
IPXI
GND
CV-INPUT
VGND
Y-INPUT
VGND
C-INPUT
VGND
Y(I/P)/G-INPUT
VGND
CB(I/P)/B-INPUT
VGND
CR(I/P)/R-INPUT
VGND
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
EX01
EX02
EX03
EX04
EX05
EY29
EX06
EX07
EX08
EX09
EX10
EX11
EX12
F
G
H
CX08
FZ0.1u
CX01
FZ0.1u
CX02
FZ0.1u
CX03
FZ0.1u
CX09
22u16V
CX04
10u16V
CX05
10u16V
CX06
10u16V
ICX0
MM1568
1 VCC
2 CIN
3 MUTE1
4 VIN
5 YCMIX
6 YIN
7 BIAS
8 GND
9 NC
10 GND
11 NC
12 CYIN
13 CLP
14 CbIN
15 MUTE2
16 CrIN
17 GND
RX01
10k
QX01
RN1402
1
2
3
1
2
3


ICX01
MM1568AJBE
1 VCC
2 CIN
3 MUTE1
4 VIN
5 YCMIX
6 YIN
7 BIAS
8 GND
9 NC
10 GND
11 NC
12 CYIN
13 CLP
14 CbIN
15 MUTE2
16 CrIN
17 GND
VCC 34
COUT 33
GND 32
VOUT 31
VSAG 30
GND 29
YOUT 28
YSAG 27
GND 26
CYOUT 25
CYSAG 24
GND 23
CbOUT 22
CbSAG 21
GND 20
CrOUT 19
CrSAG 18
RX01
10k
QX01
RN1402
CX20
FZ0.1u
CX10
100u16V
CX11
22u16V
CX12
100u16V
CX13
22u16V
CX14
100u16V
CX15
22u16V
CX16
100u16V
CX17
22u16V
CX18
100u16V
CX19
22u16V
RX04
75F
C SIGNAL
RX03
75F
COMPOSITE
VIDEO SIGNAL
Y SIGNAL
RX05
75F
CY SIGNAL
RX02
75F
RX06
75F
Cb SIGNAL
RX08
75F
Cr SIGNAL
DX06
1SS226
DX05
NC
DX07
1SS226
DX08
NC
DX09
NC
DX10
NC
DX11
NC
DX12
NC
DX13
NC
DX14
NC
DX15
NC
RX10
75F
RX11
75F
RX09
4.7k
RX07
1.8k
RX12
75F
RX13
8.2k
RX14
3.3k
RX15
3.3k
QX02
RN1402
QX03
RN1402
QX04
RN1402
RX17
8.2k
RX16
2.2k
EX16
EX17
RX18
6.8k
CX21
FZ0.1u
RX19
1.5k
EX18
EX13
EX14
EX15
100k
CY17
FL0.0012u
Y-OUTPUT
COMPOSITE
VIDEO
OUTPUT
S-VIDEO
OUTPUT
1
2
3
H:Interlace
SX01
SSAA110200
L:Progressive
JX03
CONE-YKF45-3001
EX44
EX46
EX47
EX45
EX48
EX49
1 Y-OUT
2 GND
3 PB-OUT
4 GND
5 PR-OUT
6 GND
7 RESERVE
8 LINE1
9 LINE2
10 RESERVE2
11 LINE3
12 SW-GND
13 RESERVE3
14 SW
D-SUB-14P-CONNECTER
3
4
5
6


Y-OUTPUT
3
COMPOSITE
VIDEO
OUTPUT
1
S-VIDEO
OUTPUT
2

	SD3800	SD3800 JPN	SD3800 EURO
CNX03	NC	NC	52806-1410
JX03	NC	YKC22-0494	NC
QX02, QX03	NC	RN1402	NC
RX10, RX11, RX12	NC	75F	NC
RX07	NC	1.8k	NC
RX13	NC	8.2k	NC
RX14	NC	3.3k	NC
RX16	NC	2.2k	NC
RX17	NC	8.2k	NC
RY38	0	0	NC
RY35	NC	NC	0

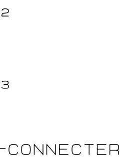

2
3
-CONNECTER

Fig. 3-5-6

D

E

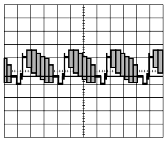
F

G

7

Output Circuit Diagram

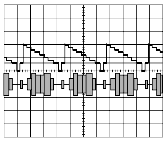
① JX01 Composite video output D-7



CVBS output
75Ω terminated
100% color bar

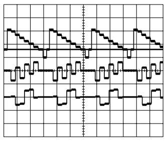
V: 500 mV/div
H: 20 µs/div

② JX01
(a) S-video output Y E-7
(b) S-video output C E-7



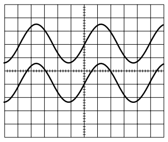
S-Y/C
75Ω terminated
100% color bar
(a) Y
(b) C
V: 500 mV/div
H: 20 µs/div

③ JX01 Y/PB/PR output D-6



Component output
75Ω terminated
100% color bar
(Play)
Y
PB
PR
V: 500 mV/div
H: 20 µs/div

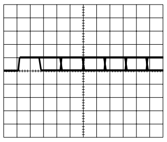
④ JX01 L ch output D-6
/ R ch output D-6
(1 kHz, FS)



L ch output

R ch output
V: 2 V/div
H: 200 µs/div

⑤ JX01 COAXIAL -DIGITAL OUTPUT C-6



75Ω terminated

V: 500 mV/div
H: 0.1 µs/div

Fig. 3-5-7

5-5. Motor System Circuit Diagram

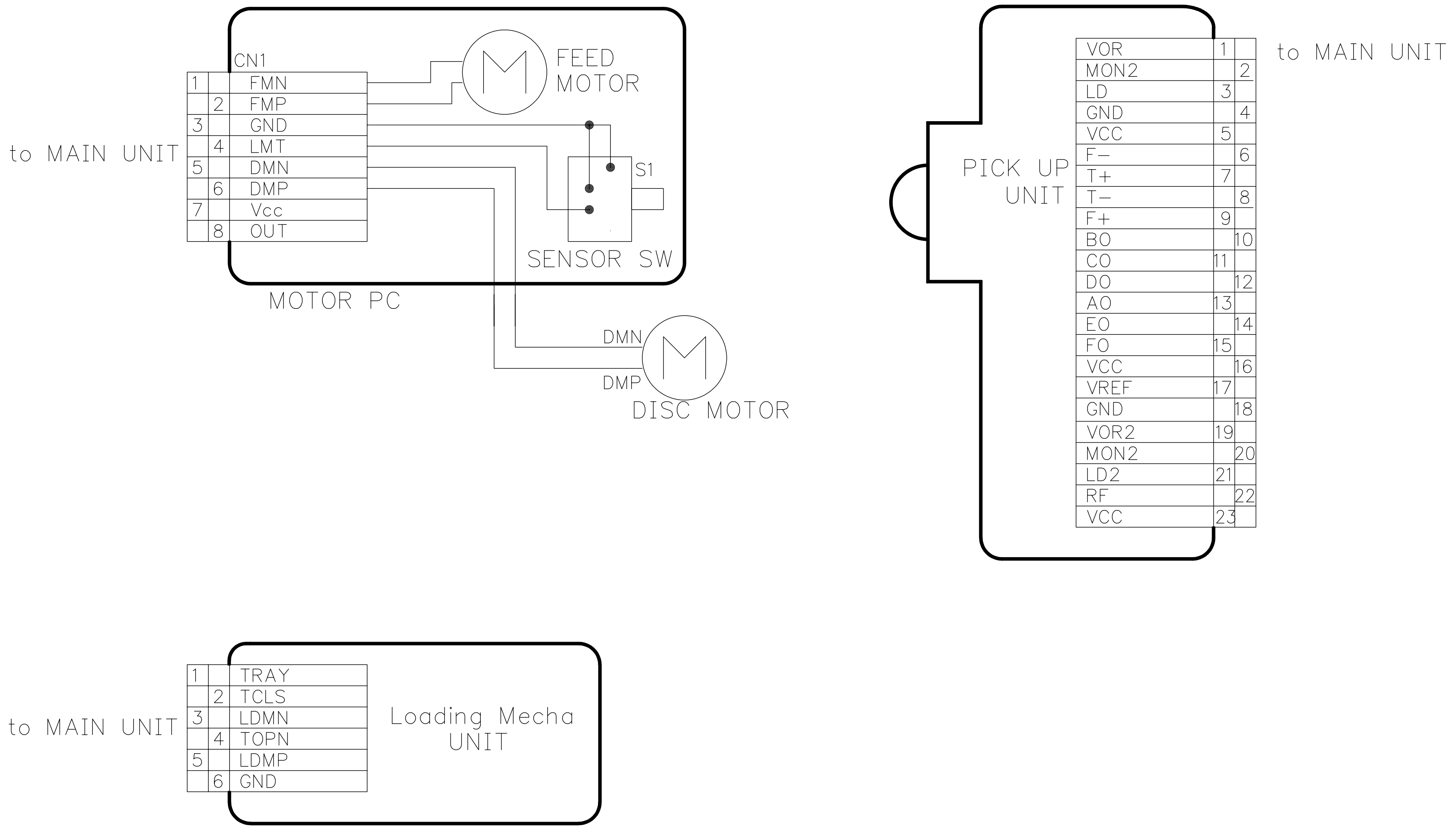

CN1
to MAIN UNIT
1 FMN
2 FMP
3 GND
4 LMT
5 DMN
6 DMP
7 Vcc
8 OUT
FEED MOTOR
S1
SENSOR SW
MOTOR PC
DMN
DMP
DISC MOTOR
PICK UP UNIT
to MAIN UNIT
VOR 1
MON2 2
LD 3
GND 4
VCC 5
F− 6
T+ 7
T− 8
F+ 9
BO 10
CO 11
DO 12
AO 13
EO 14
FO 15
VCC 16
VREF 17
GND 18
VOR2 19
MON2 20
LD2 21
RF 22
VCC 23
to MAIN UNIT
1 TRAY
2 TCLS
3 LDMN
4 TOPN
5 LDMP
6 GND
Loading Mecha UNIT

Fig. 3-5-8

6. PC BOARDS

6-1. Power Supply PC Board

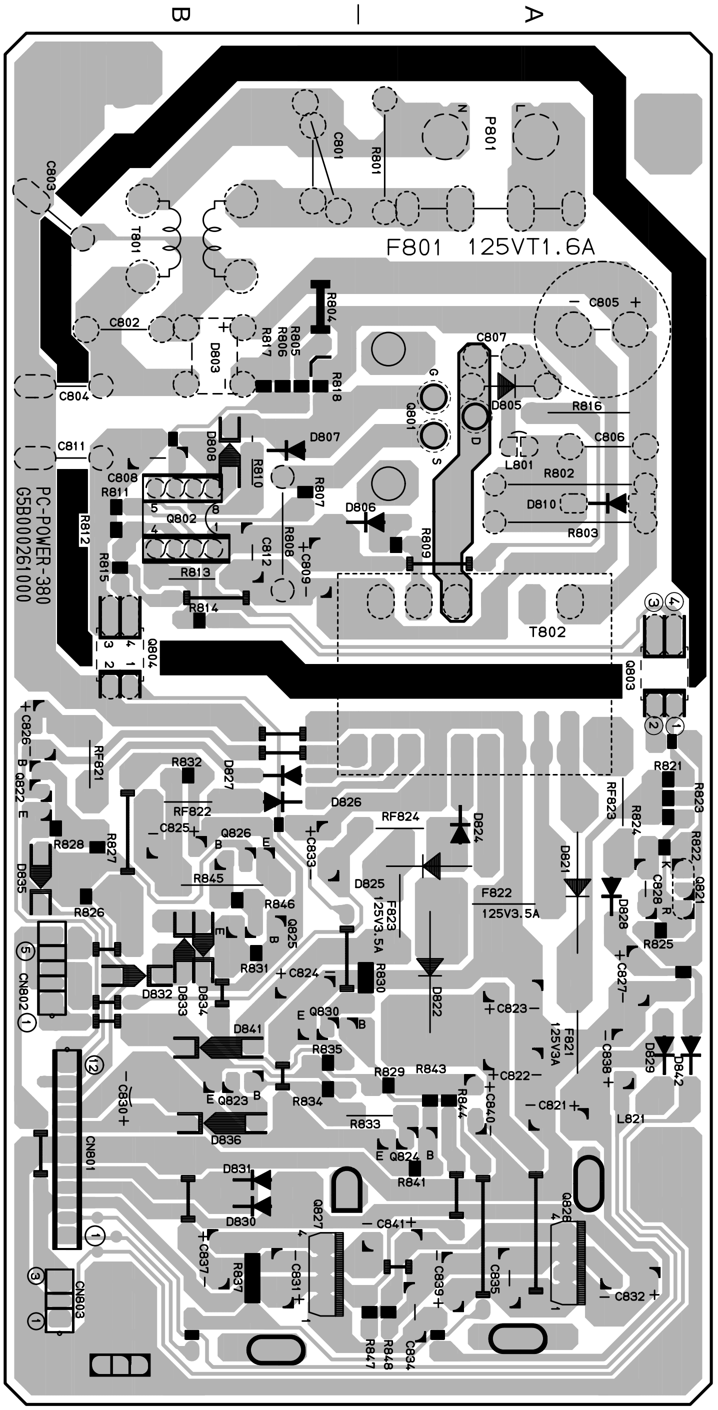

B
A
1
2
3
4
5
P801
N
L
R801
C801
C803
T801
F801 125VT1.6A
C805
C802
D803
R804
R805
R806
R817
R818
C807
C804
Q801
G
D
S
D805
R816
C811
C808
D808
R810
D807
L801
C806
R802
R811
Q802
R807
D806
D810
R803
R812
R815
R813
R808
C812
C809
R809
R814
T802
Q804
Q803
PC-POWER-380
G5B0026I000
C826
Q822
RF821
R832
D827
RF822
D826
RF824
D824
C825
Q826
C833
R828
R827
R845
D825
F823
125V3.5A
F822
125V3.5A
D821
D828
R821
R823
R824
R822
Q821
C828
R825
D835
R826
R846
Q825
CN802
R831
C824
R830
D822
C827
D832
D833
D834
D841
Q830
C823
F821
125V3A
C838
D829
D842
R835
R829
R843
C830
Q823
R834
R844
C822
C840
C821
L821
CN801
R833
D836
Q824
R841
D831
D830
Q827
C841
Q828
C837
R837
C831
C839
C835
C832
CN803
R847
R848
C834

Fig. 3-6-1 EU02 Power Supply PC Board (Bottom side)

Part No.	Location
C801	B1
C802	B2
C803	B1
C804	B2
C805	A1
C806	A2
C807	A2
C808	B2
C809	B2
C811	B2
C812	B2
C821	A4
C822	A4
C823	A4
C824	B4
C825	B3
C826	B3
C827	A4
C828	A4
C830	B4
C831	B5
C832	A5
C833	B3
C834	A5
C835	A5
C837	B5
C838	A4
C839	A5
C840	A4
C841	A5
CN801	B5
CN802	B4
CN803	B5
D803	B2
D805	A2
D806	A2
D807	B2
D808	B2
D810	A2
D821	A4
D822	A4
D824	A3
D825	A4
D826	B3
D827	B3
D828	A4
D829	A4
D830	B5
D831	B5
D832	B4
D833	B4
D834	B4
D835	B4
D836	B5
D841	B4
D842	A4
F821	A4
F822	A4
F823	A4
L801	A2
L821	A4
P801	A1
Q801	A2
Q802	B2
Q804	B3
Q821	A4
Q822	B3
Q823	B4
Q824	A5
Q825	B4
Q826	B3
Q827	B5
Q828	A5
Q830	B4
R801	A1
R802	A2
R803	A2
R804	B1
R805	B2
R806	B2
R807	B2
R808	B2
R809	A2
R810	B2
R811	B2
R812	B2
R813	B2
R814	B3
R815	B2
R816	A2
R817	B2
R818	B2
R821	A3
R822	A3
R823	A3
R824	A3
R825	A4
R826	B4
R827	B3
R828	B3
R829	A4
R830	A4
R831	B4
R832	B3
R833	A4
R834	B4
R835	B4
R837	B5
R841	A5
R843	A4
R844	A4
R845	B4
R846	B4
R847	A5
R848	A5
RF821	B3
RF822	B3
RF823	A3
RF824	A3
T801	B1
T802	A3

6-2. Power Switch PC Board

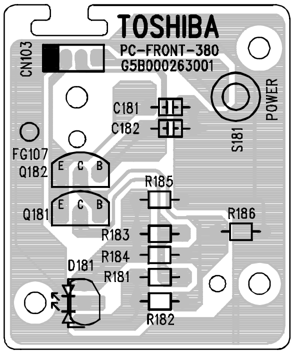

TOSHIBA
PC-FRONT-380
G5B000263001
CN103
C181
C182
POWER
S181
FG107
Q182
E C B
Q181
E C B
R185
R186
R183
R184
R181
D181
R182

Fig. 3-6-2 EU04
Power Switch PC Board
(Top side)

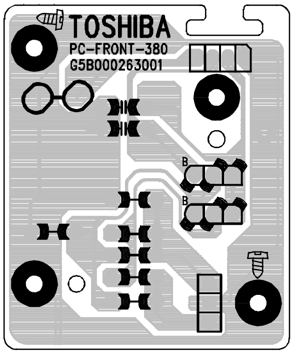

TOSHIBA
PC-FRONT-380
G5B000263001
B
B

Fig. 3-6-3 EU04
Power Switch PC Board
(Bottom side)

Part No.	Location
C181	B2
C182	B2
CN103	B2
D181	B2
FG107	B2
Q181	B2
Q182	B2
R181	B2
R182	B2
R183	B2
R184	B2
R185	B2
R186	B2
S181	B2

6-3. Main PC Board

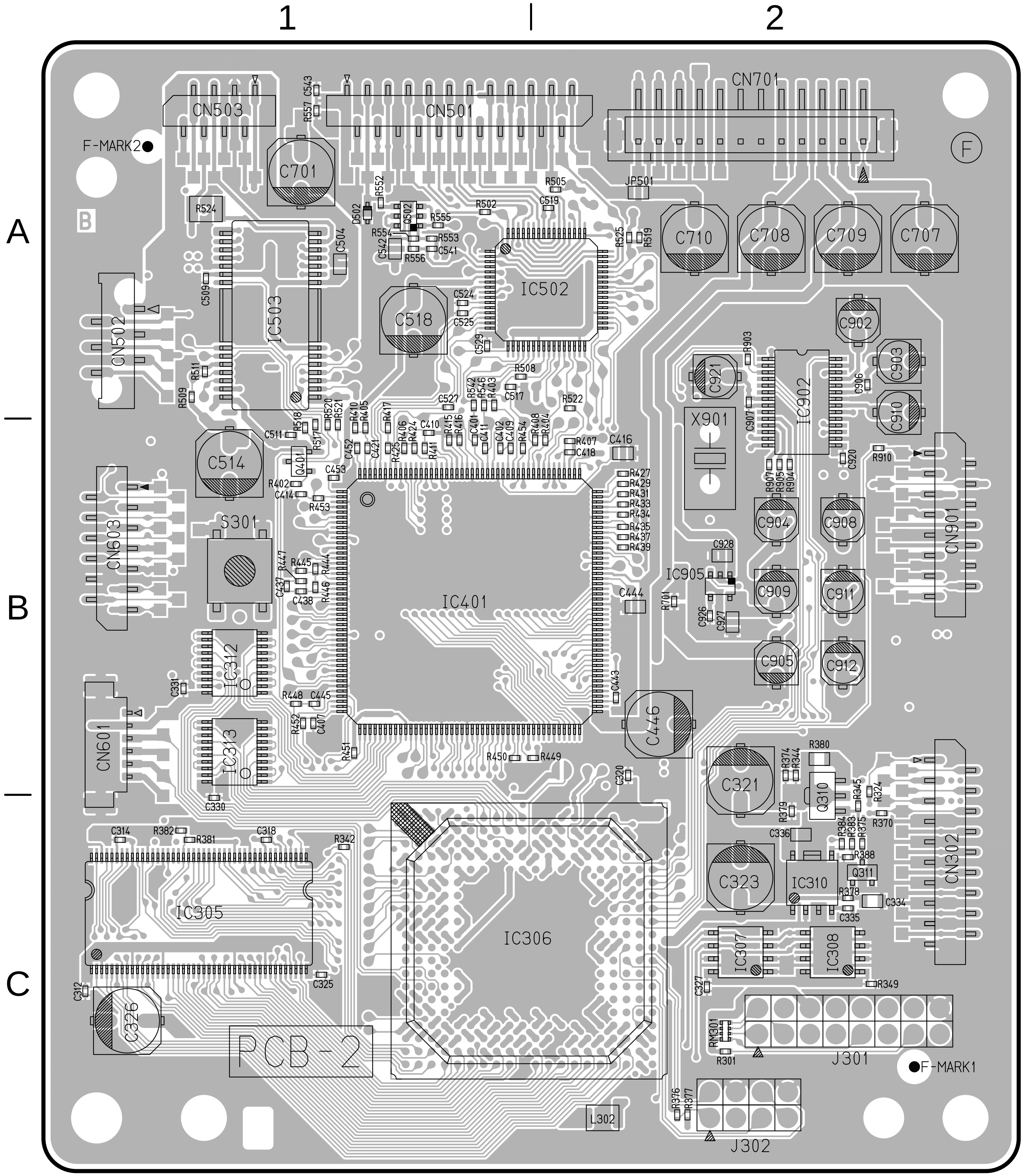

1
2
A
B
C
CN503
CN501
CN701
F-MARK2
F-MARK1
C701
R524
IC503
CN502
IC502
C518
C710
C708
C709
C707
JP501
C902
C903
C910
C921
IC902
X901
CN901
C514
S301
CN603
IC401
C904
C908
C909
C911
C905
C912
IC905
C446
IC312
IC313
CN601
C321
C323
Q310
CN302
IC310
Q311
IC305
IC306
IC307
IC308
J301
J302
C326
PCB-2
L302
RM301

Fig. 3-6-4 EU01 Main PC Board (Top pattern and Top parts location diagram)

Main PC Board (Top Side)

Part No.	Location
C312	C1
C314	C1
C318	C1
C320	B2
C321	B2
C323	C2
C325	C1
C326	C1
C327	C2
C330	C1
C331	B1
C334	C2
C335	C2
C336	C2
C401	B1
C402	B1
C407	B1
C409	B1
C410	B1
C411	B1
C414	B1
C416	B2
C418	B2
C421	B1
C437	B1
C438	B1
C443	B2
C444	B2
C445	B1
C446	B2
C452	B1
C453	B1
C504	A1
C509	A1
C511	B1
C514	B1
C517	A1
C518	A1
C519	A2
C524	A1
C525	A1
C527	A1
C529	A1
C541	A1
C542	A1
C543	A1
C701	A1
C707	A2
C708	A2
C709	A2
C710	A2
C902	A2
C903	A2
C904	B2
C905	B2
C906	A2
C907	A2
C908	B2
C909	B2
C910	A2
C911	B2
C912	B2
C920	B2
C921	A2
C926	B2
C927	B2
C928	B2
CN302	C2
CN501	A1
CN502	A1
CN503	A1
CN601	B1
CN603	B1
CN701	A2
CN901	B2
D502	A1
E201	B2
E301	B2
E302	B2
E303	B2
E304	B2
E305	C2
E306	C2
E307	C2
E308	C2
E309	C2
E310	C2
E311	C2
E312	C2
E313	C2
E314	C1
E315	B2
E316	B2
E320	C2
E321	C2
E322	B1
E323	C2
E324	C2
E325	C2
E326	C1
E327	C1
E328	C1
E329	C1
E330	C1
E331	C2
E332	B1
E333	C1
E334	C1
E335	C1
E336	C1
E337	C1
E401	B2
E402	B1
E403	A1
E405	B1
E406	B1
E407	B1
E408	B2
E409	B2
E410	B1
E411	B2
E412	B2
E413	B1
E414	B1
E415	B1
E416	B1
E417	B1
E418	B1
E419	B1
E420	B1
E421	B1
E422	B1
E423	B1
E424	B1
E425	B1
E426	B1
E501	A1
E502	A1
E503	A1
E504	A1
E505	A2
E506	A2
E507	A1
E508	A1
E509	A1
E510	A1
E511	A1
E512	A1
E513	A1
E514	A1
E515	A1
E516	A1
E517	A1
E518	A1
E519	A2
E520	A2
E521	A2
E522	A1
E523	A1
E524	A1
E525	A1
E526	A1
E527	A1
E528	A1
E529	A1
E530	A1
E531	A1
E532	A1
E533	A2
E534	A1
E535	A2
E536	A2
E537	A1
E538	A1
E539	A1
E540	A1
E541	A1
E542	A1
E543	A1
E544	A1
E545	A2
E546	A1
E547	A1
E548	A2
E549	A1
E550	A1
E551	A1
E552	A1
E553	A1
E554	A1
E555	A1
E556	A1
E557	A1
E558	A1
E559	A1
E560	A1
E561	A2
E562	A2
E563	A2
E564	A2
E565	A2
E566	A2
E567	A2
E568	A2
E569	A2
E570	A2
E571	A2
E572	A2
E573	A2
E574	A2
E575	A2
E576	A2
E577	A2
E578	A2
E579	A1
E580	A1
E581	A1
E582	A1
E583	A2
E584	A1
E585	A1
E586	A1
E587	A1
E588	A1
E589	A1
E601	B1
E602	B1
E603	B1
E604	B1
E605	B1
E606	B1
E608	B1
E609	B1
E610	B1
E611	B1
E612	B1
E613	B1
E614	B1
E615	B1
E616	C1
E617	B1
E618	C1
E619	C1
E651	B1
E652	B1
E701	A2
E702	A2
E703	A2
E704	A1
E705	A2
E706	A2
E707	A2
E708	A2
E709	A2
E710	A2
E711	A2
E712	A2
E713	A2
E714	A2
E715	A2
E901	B2
E902	B2
E903	B2
E904	B2
E905	B2
E906	B2
E907	B2
E908	B2
E909	B2
E910	B2
E911	B2
E912	B2
E913	B2
E914	B2
E915	B2
F-MARK1	C2
F-MARK2	A1
IC305	C1
IC306	C1
IC307	C2
IC308	C2
IC310	C2
IC312	B1
IC313	B1
IC401	B1
IC502	A2
IC503	A1
IC902	A2
IC905	B2
J301	C2
J302	C2
JP301	B2
JP501	A2
L302	C2
Q310	C2
Q311	C2
Q401	B1
Q502	A1
R301	C2
R324	B2
R342	C1
R344	B2
R345	C2
R349	C2
R370	C2
R374	B2
R375	C2
R376	C2
R377	C2
R378	C2
R379	C2
R380	B2
R381	C1
R382	C1
R383	C2
R384	C2
R388	C2
R402	B1
R403	A1
R404	B2
R405	B1
R406	B1
R407	B2
R408	B2
R410	B1
R411	B1
R415	B1
R416	B1
R417	B1
R424	B1
R425	B1
R427	B2
R429	B2
R431	B2
R433	B2
R434	B2
R435	B2
R437	B2
R439	B2
R444	B1
R445	B1
R446	B1
R447	B1
R448	B1
R449	B2
R450	B1
R451	B1
R452	B1
R453	B1
R454	B1
R502	A1
R505	A2
R508	A1
R509	A1
R511	A1
R517	B1
R518	B1
R519	A2
R520	B1
R521	B1
R522	A2
R524	A1
R525	A2
R542	A1
R546	A1
R552	A1
R553	A1
R554	A1
R555	A1
R556	A1
R557	A1
R701	B2
R903	A2
R904	B2
R905	B2
R907	B2
R910	B2
RM301	C2
S301	B1
TP401	B1
TP402	B1
TP403	B2
TP404	B2
TP405	B1
TP406	B1
TP407	B2
TP408	B1
TP409	B2
TP410	B1
TP411	B1
TP412	B1
TP413	B1
TP414	B1
TP501	B1
TP502	A2
TP503	B1
TP504	B1
X901	B2

Main PC Board (Bottom Side)

Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location
C301	C1	C523	A1	R311	C2	R430	B1
C302	C2	C526	A1	R312	C2	R432	B1
C303	C1	C528	A1	R313	C1	R436	B1
C304	C2	C530	A2	R314	C2	R438	B1
C305	B2	C532	A1	R315	C2	R442	B1
C306	B2	C533	A1	R316	C2	R443	B1
C307	C1	C534	A2	R317	C2	R455	B2
C308	C1	C539	A2	R318	C2	R461	B2
C309	C2	C601	B2	R319	C1	R501	A2
C310	C2	C602	B2	R320	C1	R503	A2
C311	C1	C603	B2	R321	C1	R504	A2
C313	C2	C702	A1	R322	C1	R506	A1
C315	C2	C703	A1	R323	C1	R507	A1
C316	C2	C704	A1	R325	C1	R510	A1
C317	C2	C705	A1	R326	B1	R512	A1
C319	C1	C706	A1	R327	C1	R513	B2
C322	C1	C711	A1	R328	C1	R514	A2
C324	C1	C712	A1	R329	C1	R515	A2
C328	C1	C713	A1	R330	C1	R516	A2
C329	C1	C714	A1	R331	C1	R523	A2
C332	B2	C715	A1	R332	C1	R526	A2
C333	C2	C901	B1	R333	C1	R527	A2
C337	C1	C913	A1	R334	C1	R528	A2
C403	B2	C914	A1	R335	C1	R529	A2
C404	B2	C915	B1	R336	C1	R530	A2
C405	B2	C916	B1	R337	C1	R531	A2
C406	B2	C917	B1	R338	C1	R532	A2
C408	B2	C918	B1	R339	C1	R533	A2
C412	B2	C919	B1	R340	B2	R534	A2
C413	B2	C922	B1	R341	C1	R535	A1
C415	B2	C923	B1	R343	C2	R536	A1
C417	A2	C924	B1	R346	C2	R537	A2
C419	B1	C925	B1	R347	C2	R538	A2
C420	B2	D501	A1	R348	C2	R539	A1
C422	B1	D901	B1	R350	C2	R540	A2
C423	B2	D902	B1	R351	C1	R541	A2
C424	B1	D903	B1	R352	B1	R545	A1
C425	B1	F-MARK3	C1	R353	B1	R547	A2
C426	B1	F-MARK4	A2	R354	C1	R551	A2
C427	B1	IC301	B2	R355	C1	R601	B2
C428	B1	IC302	B2	R356	C1	R602	B2
C429	B1	IC303	B2	R357	C2	R603	B2
C430	B1	IC304	B2	R358	C2	R604	B2
C431	B1	IC309	B2	R359	C1	R605	B2
C432	B1	IC402	B2	R360	C1	R606	B2
C433	B1	IC501	A2	R361	C2	R607	B2
C434	B1	IC504	A2	R362	C2	R608	B2
C435	B1	IC901	B1	R363	C2	R609	B2
C436	B2	IC903	B1	R364	C2	R610	B2
C439	B1	IC904	B1	R365	C2	R615	B2
C440	B1	Q301	C1	R366	C1	R616	B2
C441	B2	Q302	C1	R367	C1	R702	A1
C442	B1	Q303	C1	R368	C1	R901	B1
C447	B2	Q304	C1	R369	C1	R906	B1
C448	B1	Q305	C1	R371	C1	R908	B1
C449	B2	Q306	C1	R372	C1	R909	B1
C450	B2	Q307	C2	R373	B1	R911	B1
C451	B2	Q308	C1	R385	A1	R912	B1
C501	A2	Q309	C1	R386	A1	R913	B1
C502	A2	Q501	A1	R387	A1	R914	B1
C503	A2	Q503	B2	R401	A2	R915	B1
C505	A2	Q504	A2	R409	B2	R916	B1
C506	A2	Q505	A2	R412	B1	R917	B1
C507	A2	Q506	A2	R413	B2	R918	B1
C508	A1	R302	C2	R414	B2	R919	B1
C510	A1	R303	C1	R418	B1	RM302	C2
C512	B2	R304	C2	R419	B2	RM303	C2
C513	A1	R305	C2	R420	B2	RM304	C2
C515	A2	R306	C1	R421	B2	RM305	C2
C516	A2	R307	B2	R422	B2	RM306	C2
C520	A2	R308	B2	R423	B2	RM307	C2
C521	A2	R309	C2	R426	B1	RM308	C2
C522	A1	R310	C1	R428	B1	RM309	C2
						RM310	C2

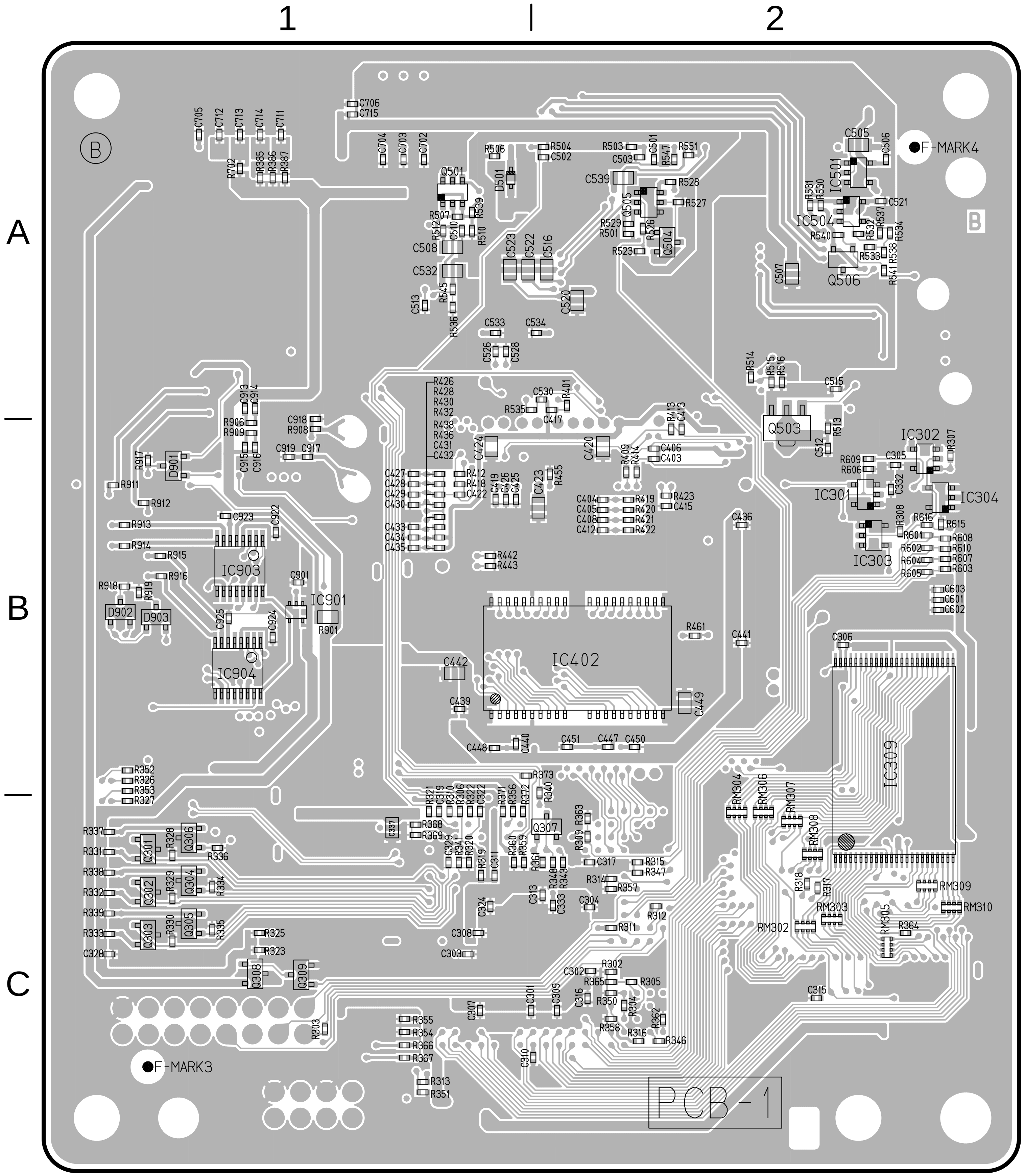

1
2
A
B
C
B
F-MARK4
F-MARK3
PCB-1
IC301
IC302
IC303
IC304
IC309
IC402
IC501
IC504
IC901
IC903
IC904
Q301
Q302
Q303
Q304
Q305
Q306
Q307
Q308
Q309
Q501
Q503
Q504
Q505
Q506
D501
D901
D902
D903
RM302
RM303
RM304
RM305
RM306
RM307
RM308
RM309
RM310
C505
C507
C508
C516
C520
C522
C523
C532
C539
C420
C423
C424
C442
C449

Fig. 3-6-5 EU01 Main PC Board (Bottom pattern and bottom parts location diagram)

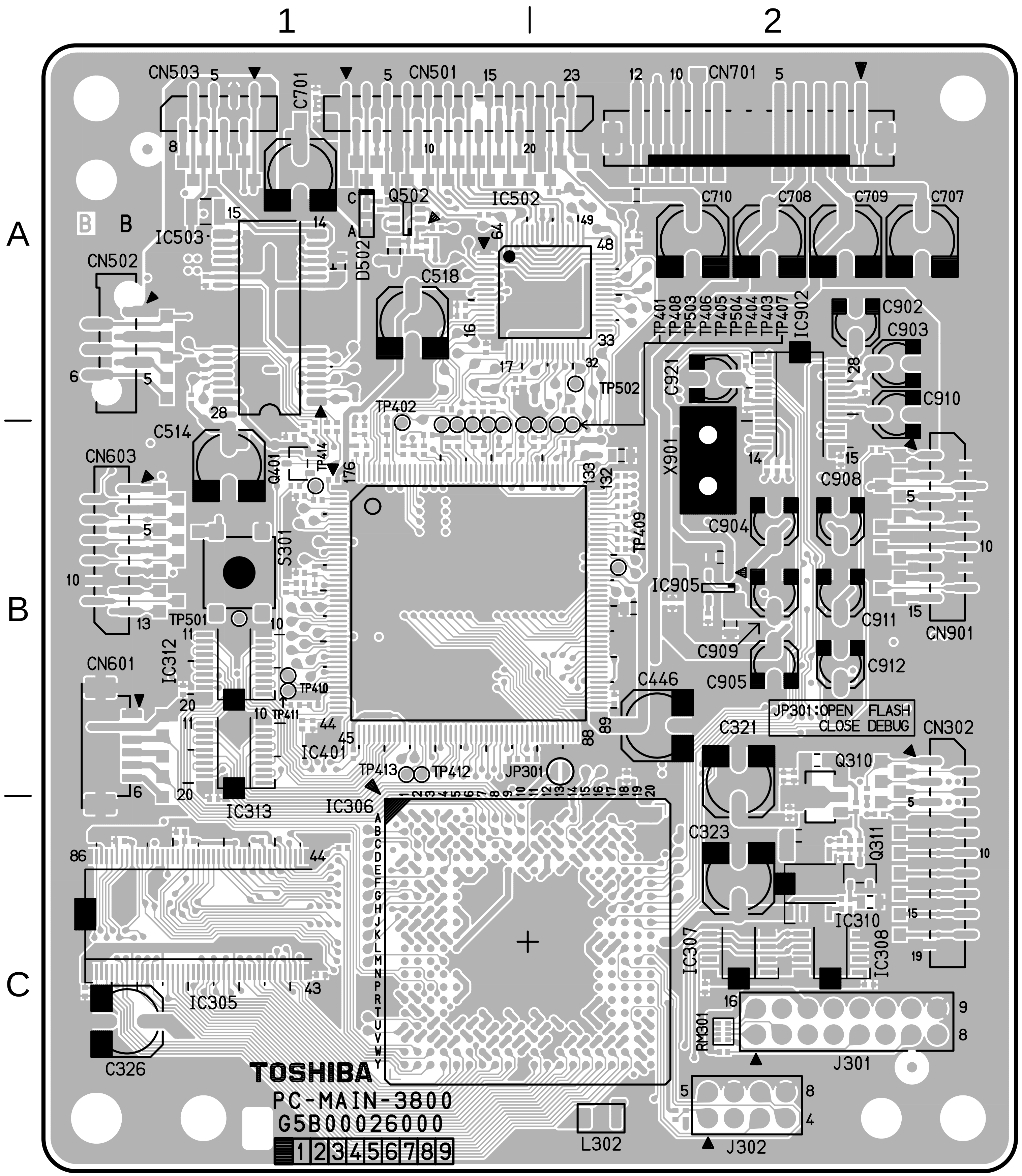

1
2
A
B
C
CN503
CN501
CN701
C701
Q502
IC502
C710
C708
C709
C707
IC503
CN502
D502
C518
TP401
TP408
TP503
TP406
TP405
TP504
TP404
TP403
TP407
IC902
C902
C903
C910
C921
TP502
TP402
X901
C514
CN603
Q401
TP414
S301
C908
C904
TP409
IC905
C911
C909
C905
C912
CN901
TP501
IC312
CN601
TP410
TP411
IC401
C446
JP301:OPEN FLASH
CLOSE DEBUG
CN302
C321
Q310
IC313
TP413
TP412
JP301
IC306
C323
Q311
IC310
IC305
IC307
IC308
RM301
J301
C326
TOSHIBA
PC-MAIN-3800
G5B00026000
123456789
L302
J302

Fig. 3-6-6 EU01 Main PC Board (Top pattern, character/symbol)

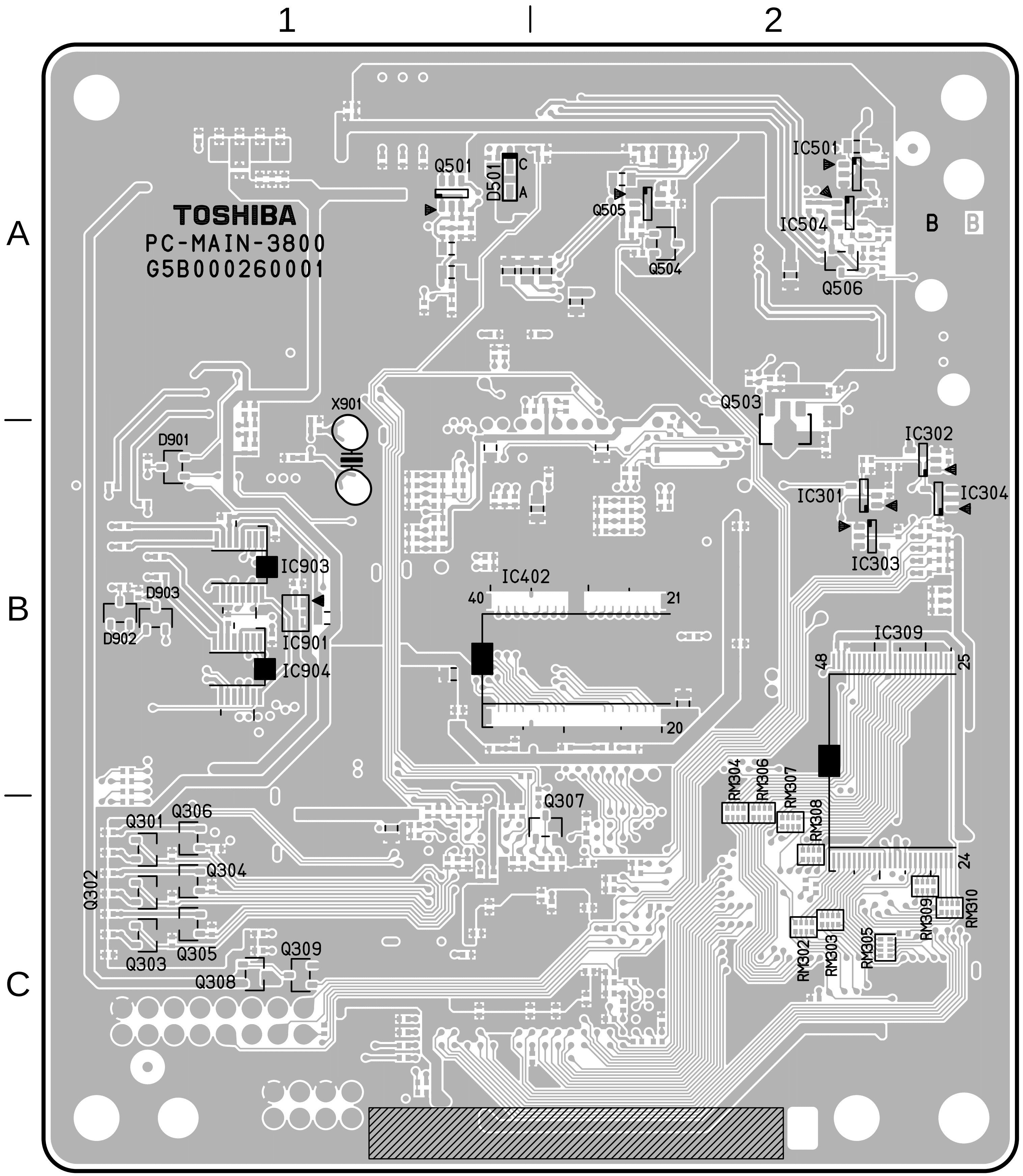

1
2
A
B
C
TOSHIBA
PC-MAIN-3800
G5B000260001
Q501
D501
C
A
Q505
Q504
IC501
IC504
Q506
B
X901
D901
Q503
IC302
IC301
IC304
IC303
IC903
D903
D902
IC901
IC904
IC402
40
21
20
IC309
48
25
24
RM304
RM306
RM307
RM308
RM302
RM303
RM305
RM309
RM310
Q307
Q301
Q306
Q304
Q302
Q303
Q305
Q308
Q309

Fig. 3-6-7 EU01 Main PC Board (Bottom pattern, character/symbol)

6-4. Output PC Board

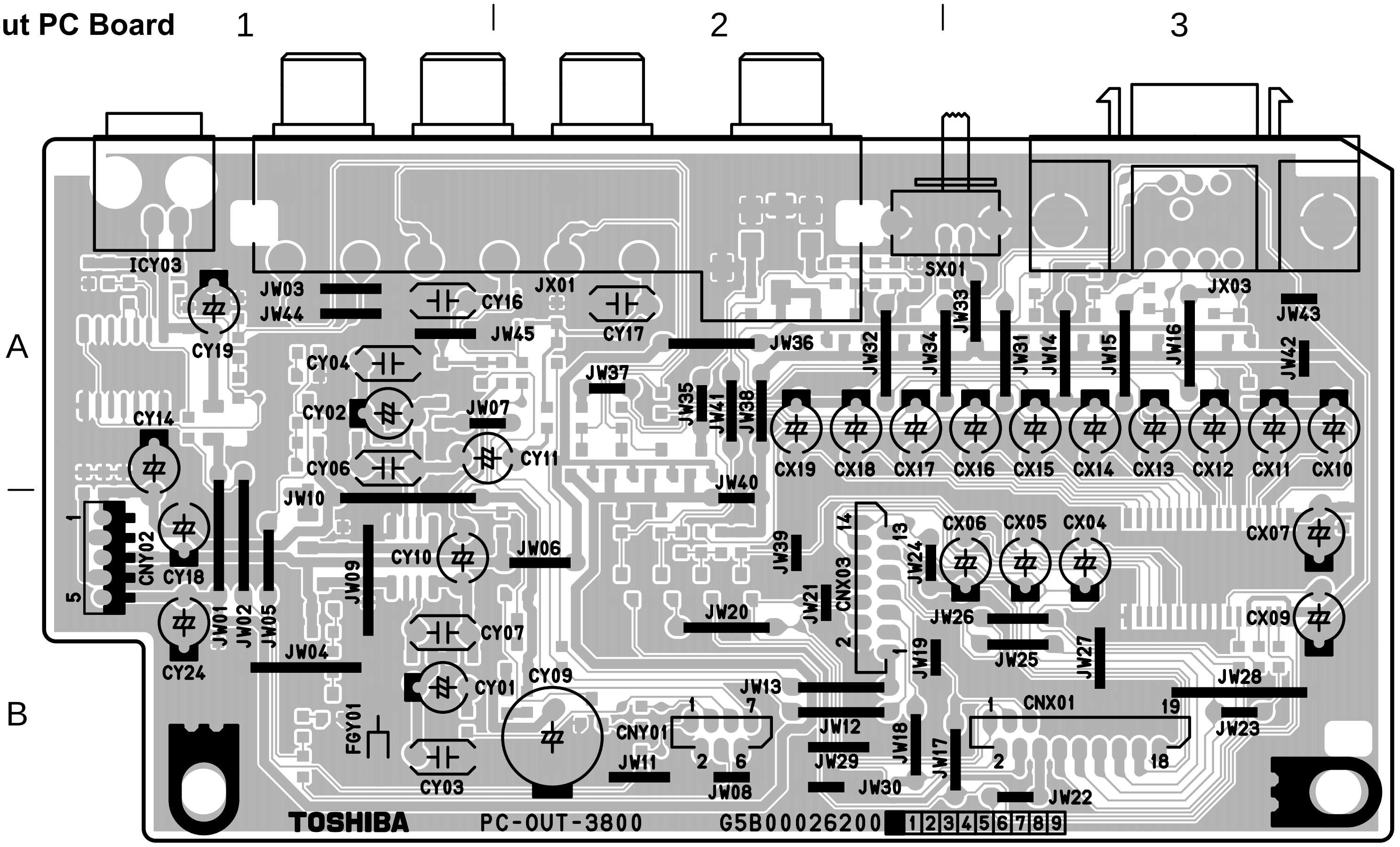

1
2
3
A
B
ICY03
CY19
JW03
JW44
CY16
JX01
JW45
CY17
JW36
SX01
JW33
JX03
JW43
JW32
JW34
JW31
JW14
JW15
JW16
JW42
CY04
CY02
JW07
JW37
JW35
JW41
JW38
CY14
CY06
CY11
CX19
CX18
CX17
CX16
CX15
CX14
CX13
CX12
CX11
CX10
JW40
JW10
CNY02
CY18
JW09
CY10
JW06
JW39
CX06
CX05
CX04
CX07
CNX03
JW24
JW21
JW20
JW26
CX09
CY24
JW01
JW02
JW05
JW04
CY07
JW25
JW27
JW19
CY01
CY09
JW13
JW28
FGY01
CNY01
JW12
JW18
CNX01
JW23
JW11
JW29
JW17
JW08
JW30
JW22
CY03
TOSHIBA
PC-OUT-3800
G5B00026200
1 2 3 4 5 6 7 8 9

Fig. 3-6-8 EU05 Output PC Board (Top side)

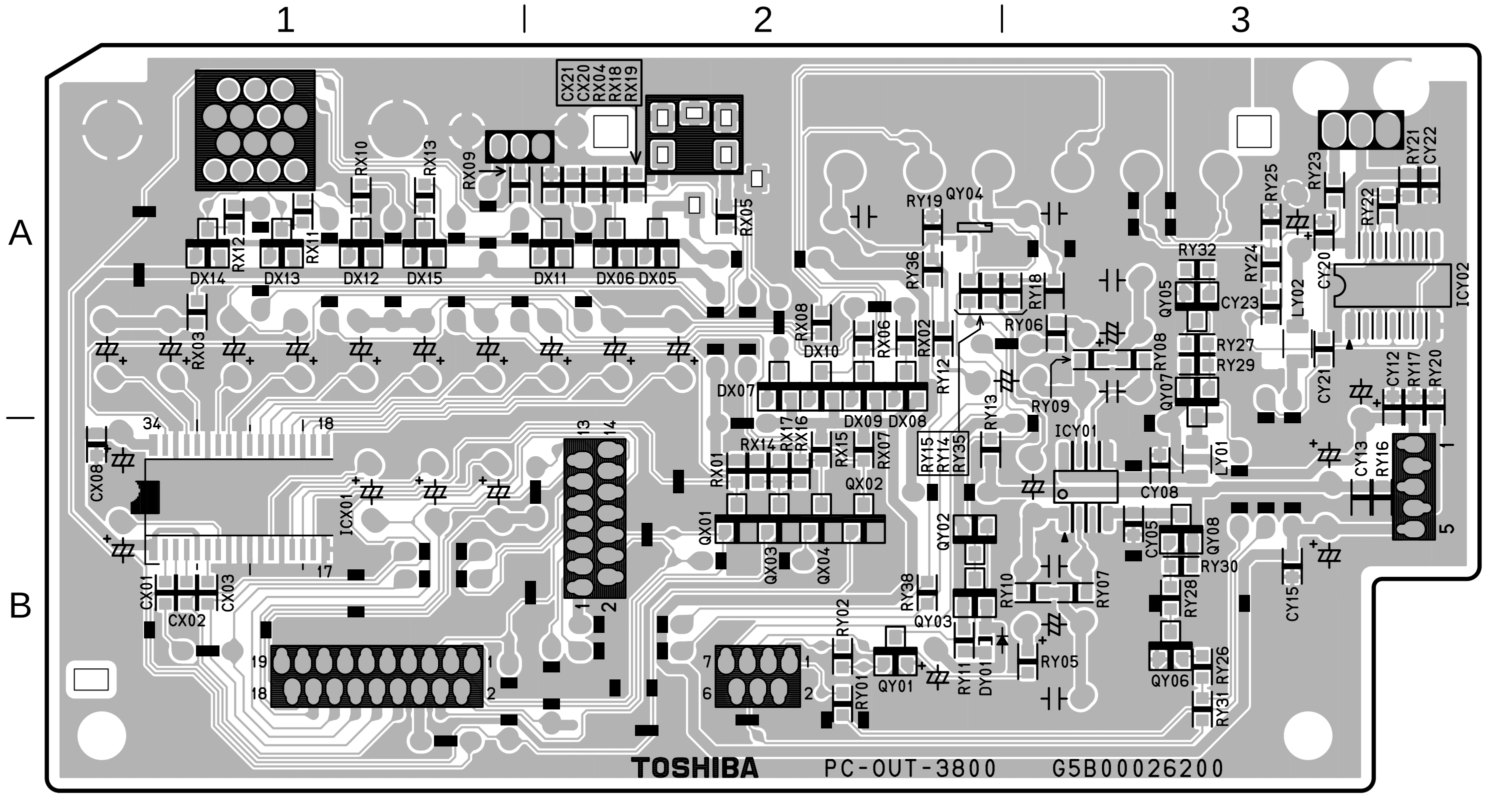

1
2
3
A
B
CX21
CX20
RX04
RX18
RX19
RX10
RX13
RX09
RX05
RX12
RX11
DX14
DX13
DX12
DX15
DX11
DX06
DX05
RX03
RX08
DX10
RX06
RX02
DX07
DX09
DX08
RX01
RX14
RX17
RX16
RX15
RX07
QX02
QX01
QX03
QX04
CX08
ICX01
CX01
CX02
CX03
RY19
QY04
RY36
RY18
RY06
RY12
RY13
RY09
ICY01
RY15
RY14
RY35
QY02
RY38
QY03
RY02
RY01
QY01
RY11
DY01
RY10
RY05
RY07
RY32
QY05
CY23
RY08
QY07
RY27
RY29
CY08
CY05
QY08
RY30
RY28
QY06
RY26
RY31
LY01
LY02
RY24
RY25
RY23
RY22
CY20
ICY02
RY21
CY22
CY21
CY12
RY17
RY20
CY13
RY16
CY15
TOSHIBA
PC-OUT-3800
G5B00026200

Fig. 3-6-9 EU05 Output PC Board (Bottom side)

Part No.	Location	Part No.	Location
CNX01	B3	JW07	A1
CNX03	B2	JW08	B2
CNY01	B2	JW09	B1
CNY02	B1	JW10	B1
CX04	B3	JW11	B2
CX05	B3	JW12	B2
CX06	B3	JW13	B2
CX07	B3	JW14	A3
CX09	B3	JW15	A3
CX10	A3	JW16	A3
CX11	A3	JW17	B2
CX12	A3	JW18	B2
CX13	A3	JW19	B2
CX14	A3	JW20	B2
CX15	A3	JW21	B2
CX16	A3	JW22	B3
CX17	A2	JW23	B3
CX18	A2	JW24	B2
CX19	A2	JW25	B3
CY01	B1	JW26	B3
CY02	A1	JW27	B3
CY03	B1	JW28	B3
CY04	A1	JW29	B2
CY06	A1	JW30	B2
CY07	B1	JW31	A3
CY09	B2	JW32	A2
CY10	B1	JW33	A3
CY11	A2	JW34	A2
CY14	A1	JW35	A2
CY16	A2	JW36	A2
CY17	A2	JW37	A2
CY18	B1	JW38	A2
CY19	A1	JW39	B2
CY24	B1	JW40	A2
FGY01	B1	JW41	A2
ICY03	A1	JW42	A3
JW01	B1	JW43	A3
JW02	B1	JW44	A1
JW03	A1	JW45	A2
JW04	B1	JX01	A2
JW05	B1	JX03	A3
JW06	B2	SX01	A2

Part No.	Location	Part No.	Location	Part No.	Location
CX01	B1	QX01	B2	RY02	B2
CX02	B1	QX02	B2	RY05	B3
CX03	B1	QX03	B2	RY06	A3
CX08	B1	QX04	B2	RY07	B3
CX20	A2	QY01	B2	RY08	A3
CX21	A2	QY02	B2	RY09	A3
CY05	B3	QY03	B2	RY10	B3
CY08	B3	QY04	A2	RY11	B2
CY12	A3	QY05	A3	RY12	A2
CY13	B3	QY06	B3	RY13	B2
CY15	B3	QY07	A3	RY14	A2
CY20	A3	QY08	B3	RY15	A2
CY21	A3	RX01	B2	RY16	B3
CY22	A3	RX02	A2	RY17	A3
CY23	A3	RX03	A1	RY18	A3
DX05	A2	RX04	A2	RY19	A2
DX06	A2	RX05	A2	RY20	A3
DX07	A2	RX06	A2	RY21	A3
DX08	A2	RX07	B2	RY22	A3
DX09	A2	RX08	A2	RY23	A3
DX10	A2	RX09	A1	RY24	A3
DX11	A2	RX10	A1	RY25	A3
DX12	A1	RX11	A1	RY26	B3
DX13	A1	RX12	A1	RY27	A3
DX14	A1	RX13	A1	RY28	B3
DX15	A1	RX14	B2	RY29	A3
DY01	B2	RX15	B2	RY30	B3
ICX01	B1	RX16	B2	RY31	B3
ICY01	B3	RX17	B2	RY32	A3
ICY02	A3	RX18	A2	RY35	A3
LY01	B3	RX19	A2	RY36	A2
LY02	A3	RY01	B2	RY38	B2

6-5. Front Display PC Board

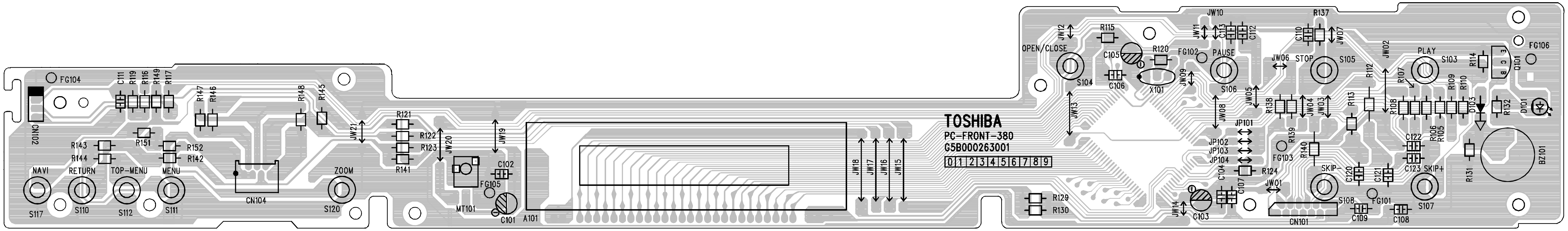

TOSHIBA
PC-FRONT-380
G5B000263001
0 1 2 3 4 5 6 7 8 9
NAVI
RETURN
TOP-MENU
MENU
ZOOM
OPEN/CLOSE
PAUSE
STOP
PLAY
SKIP-
SKIP+
S117
S110
S112
S111
S120
S104
S106
S105
S103
S108
S107
CN102
CN104
CN101
FG104
FG105
FG102
FG103
FG101
FG106
MT101
A101
X101
BZ101
Q101
D101
D103
C101
C102
C103
C104
C105
C106
C107
C108
C109
C110
C111
C112
C113
C120
C121
C122
C123
R105
R106
R107
R108
R109
R110
R112
R113
R114
R115
R116
R117
R119
R120
R121
R122
R123
R124
R129
R130
R131
R132
R137
R138
R139
R140
R141
R142
R143
R144
R145
R146
R147
R148
R149
R151
R152
JP101
JP102
JP103
JP104
JW01
JW02
JW03
JW04
JW05
JW06
JW07
JW08
JW09
JW10
JW11
JW12
JW13
JW14
JW15
JW16
JW17
JW18
JW19
JW20
JW21

Fig. 3-6-10 EU03 Front Display PC Board (Top Side)

Part No.	Loca-tion	Part No.	Loca-tion	Part No.	Loca-tion	Part No.	Loca-tion	Part No.	Loca-tion	Part No.	Loca-tion
A101	C4	C123	C10	JW03	B9	JW21	B3	R122	B3	R148	B3
BZ101	B10	CN101	C9	JW04	B9	MT101	C4	R123	B3	R149	B2
C101	C4	CN102	B1	JW05	B9	Q101	B10	R124	C9	R151	B2
C102	C4	CN104	C2	JW06	B9	R105	B10	R129	C7	R152	B2
C103	C8	D101	B10	JW07	B9	R106	B10	R130	C7	S103	B10
C104	C8	D103	B10	JW08	B8	R107	B9	R131	C10	S104	B8
C105	B8	FG101	C9	JW09	B8	R108	B9	R132	B10	S105	B9
C106	B8	FG102	B8	JW10	B8	R109	B10	R137	B9	S106	B8
C107	C8	FG103	C9	JW11	B8	R110	B10	R138	B9	S107	C10
C108	C9	FG104	B1	JW12	B7	R112	B9	R139	B9	S108	C9
C109	C9	FG105	C4	JW13	B7	R113	B9	R140	B9	S110	C1
C110	B9	FG106	B10	JW14	C8	R114	B10	R141	C3	S111	C2
C111	B2	JP101	B8	JW15	C6	R115	B8	R142	C2	S112	C2
C112	B9	JP102	B8	JW16	C6	R116	B2	R143	B1	S117	C1
C113	B8	JP103	B8	JW17	C6	R117	B2	R144	C1	S120	C3
C120	C9	JP104	C8	JW18	C6	R119	B2	R145	B3	X101	B8
C121	C9	JW01	C9	JW19	B4	R120	B8	R146	B2		
C122	B10	JW02	B9	JW20	B4	R121	B3	R147	B2		

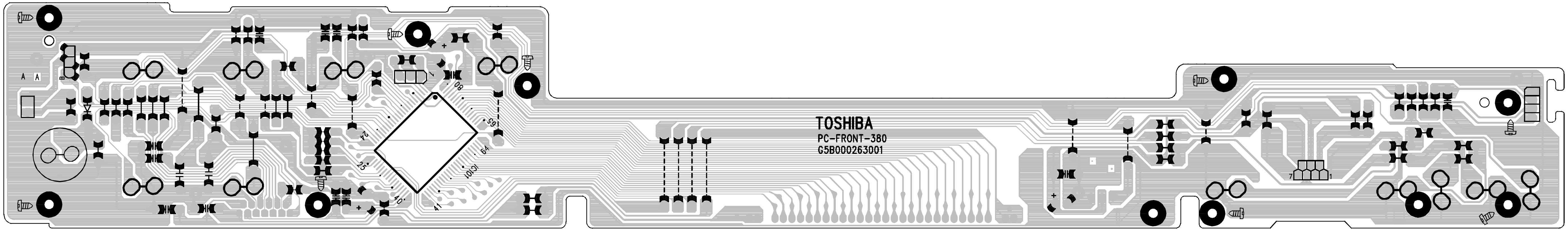

TOSHIBA
PC-FRONT-380
G5B000263001
IC101
1
24
25
40
41
64
65
80
A
A
B
7
1
+

Fig. 3-6-11 EU03 Front Display PC Board (Bottom Side)

Part No.	Loca-tion
IC101	F4

SECTION 4
PARTS LIST

SAFETY PRECAUTION

The parts identified by ! (⚠) mark are critical for safety. Replace only with part number specified.

The mounting position of replacement is to be identical with originals.

The substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

NOTICE

The part number must be used when ordering parts in order to assist in processing, be sure to include the model number and description.
The parts marked with * are used for SD-220 only.

ABBREVIATIONS

1. Integrated Circuit (IC)

2. Capacitor (Cap)

- **Capacitance Tolerance (for Nominal Capacitance more than 10pF)**

Table 4-2-1

Symbol	B	C	D	F	G	J	K	M	N
Tolerance %	± 0.1	± 0.25	± 0.5	± 1	± 2	± 5	± 10	± 20	± 30

Symbol	P	Q	T	U	V	W	X	Y	Z
Tolerance %	+ 100 0	+ 30 – 10	+ 50 – 10	+ 75 – 10	+ 20 – 10	+ 100 – 10	+ 40 – 20	+ 150 – 10	+ 80 – 20

Ex. 10MF J = 10µF ± 5%

- **Capacitance Tolerance (for Nominal Capacitance 10pF or less)**

Table 4-2-2

Symbol	B	C	D	F	G
Tolerance pF	± 0.1	± 0.25	± 0.5	± 1	± 2

Ex. 10pF G = 10pF ± 2pF

3. Resistor (Res)

- **Resistance tolerance**

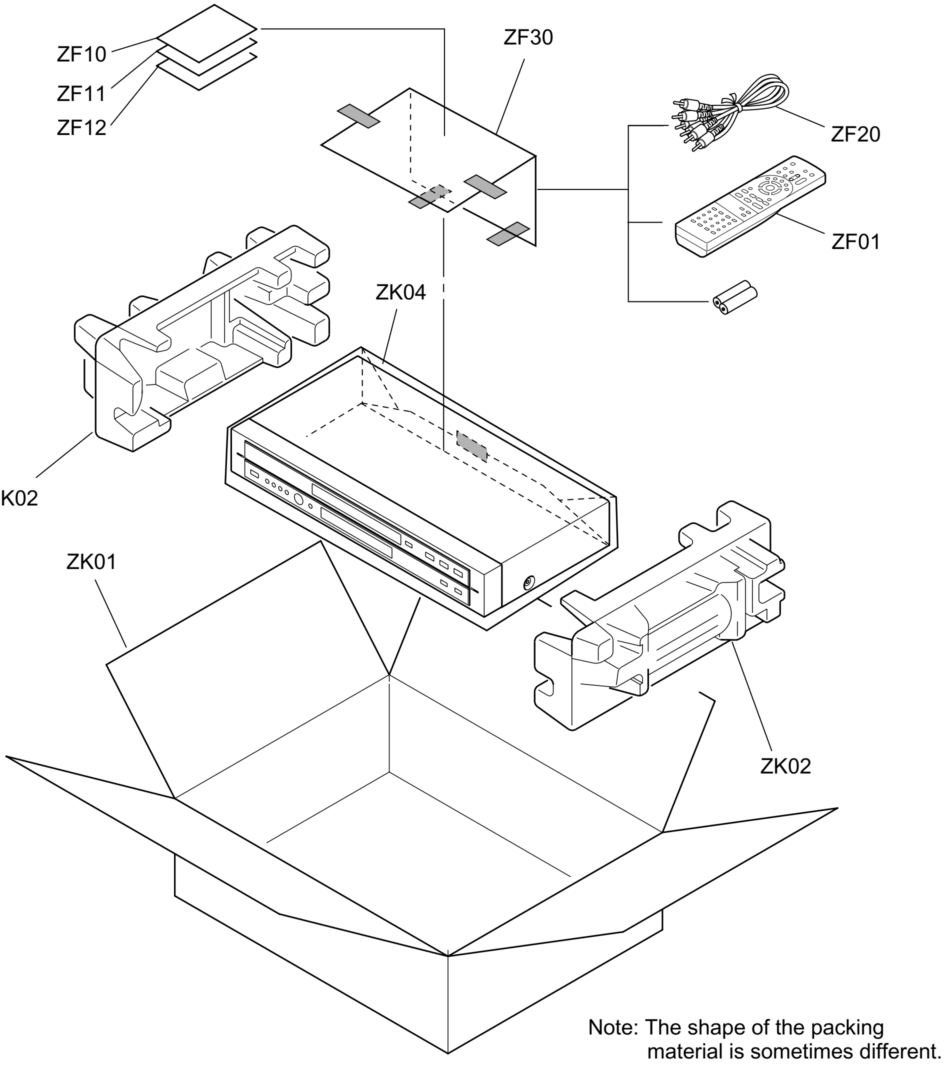
Table 4-3-1

Symbol	B	C	D	F	G	J	K	M
Tolerance %	± 0.1	± 0.25	± 0.5	± 1	± 2	± 5	± 10	± 20

Ex. 470ohmJ = 470ohm± 5%

4. EXPLODED VIEWS

4-1. Packing Assembly


ZF10
ZF11
ZF12
ZF30
ZF20
ZF01
ZK04
ZK02
ZK01
ZK02

Note: The shape of the packing material is sometimes different.

Fig. 4-4-1

4-2. Chassis Assembly (Type A)

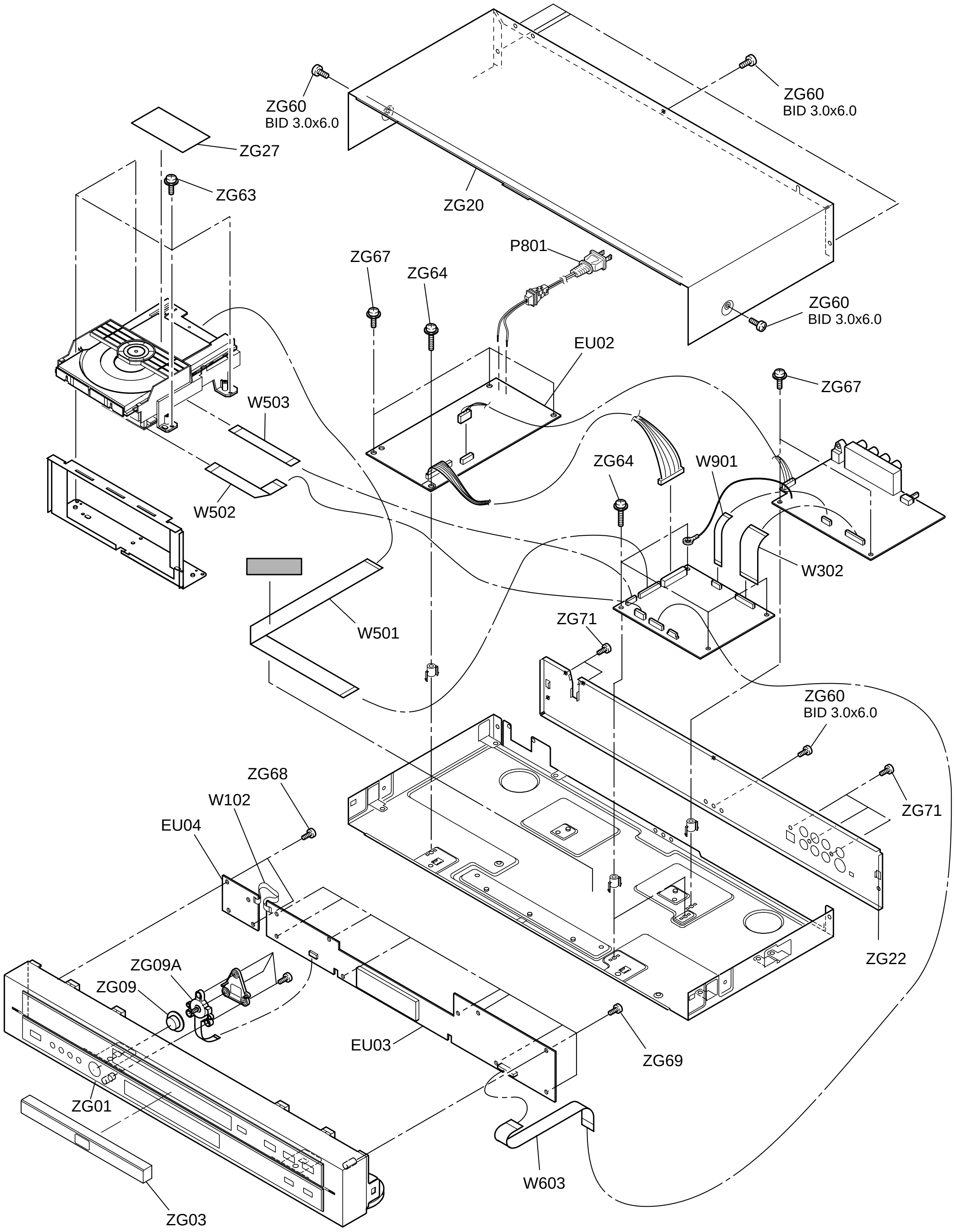
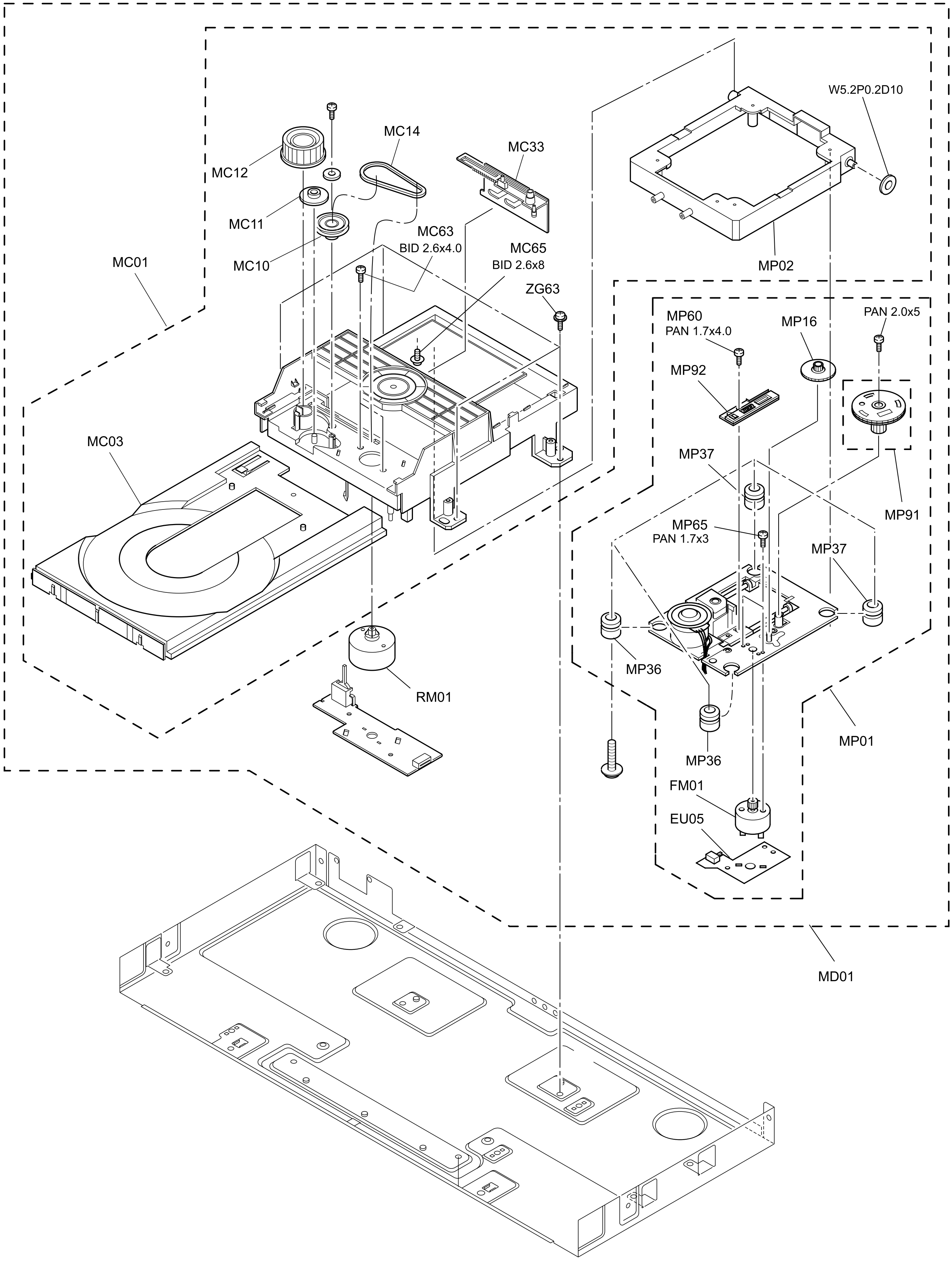

ZG60
BID 3.0x6.0
ZG60
BID 3.0x6.0
ZG27
ZG63
ZG20
P801
ZG67
ZG64
ZG60
BID 3.0x6.0
EU02
ZG67
W503
ZG64
W901
W502
W302
W501
ZG71
ZG60
BID 3.0x6.0
ZG68
W102
ZG71
EU04
ZG09A
ZG09
ZG22
EU03
ZG69
ZG01
W603
ZG03

Fig. 4-4-2

4-3. Mechanism Assembly (Type A)



W5.2P0.2D10
MC14
MC33
MC12
MC11
MC63
BID 2.6x4.0
MC65
BID 2.6x8
MC10
MC01
MP02
ZG63
MP60
PAN 1.7x4.0
MP16
PAN 2.0x5
MP92
MC03
MP37
MP91
MP65
PAN 1.7x3
MP37
MP36
RM01
MP01
MP36
FM01
EU05
MD01

Fig. 4-4-3

4-4. Chassis Assembly (Type B)

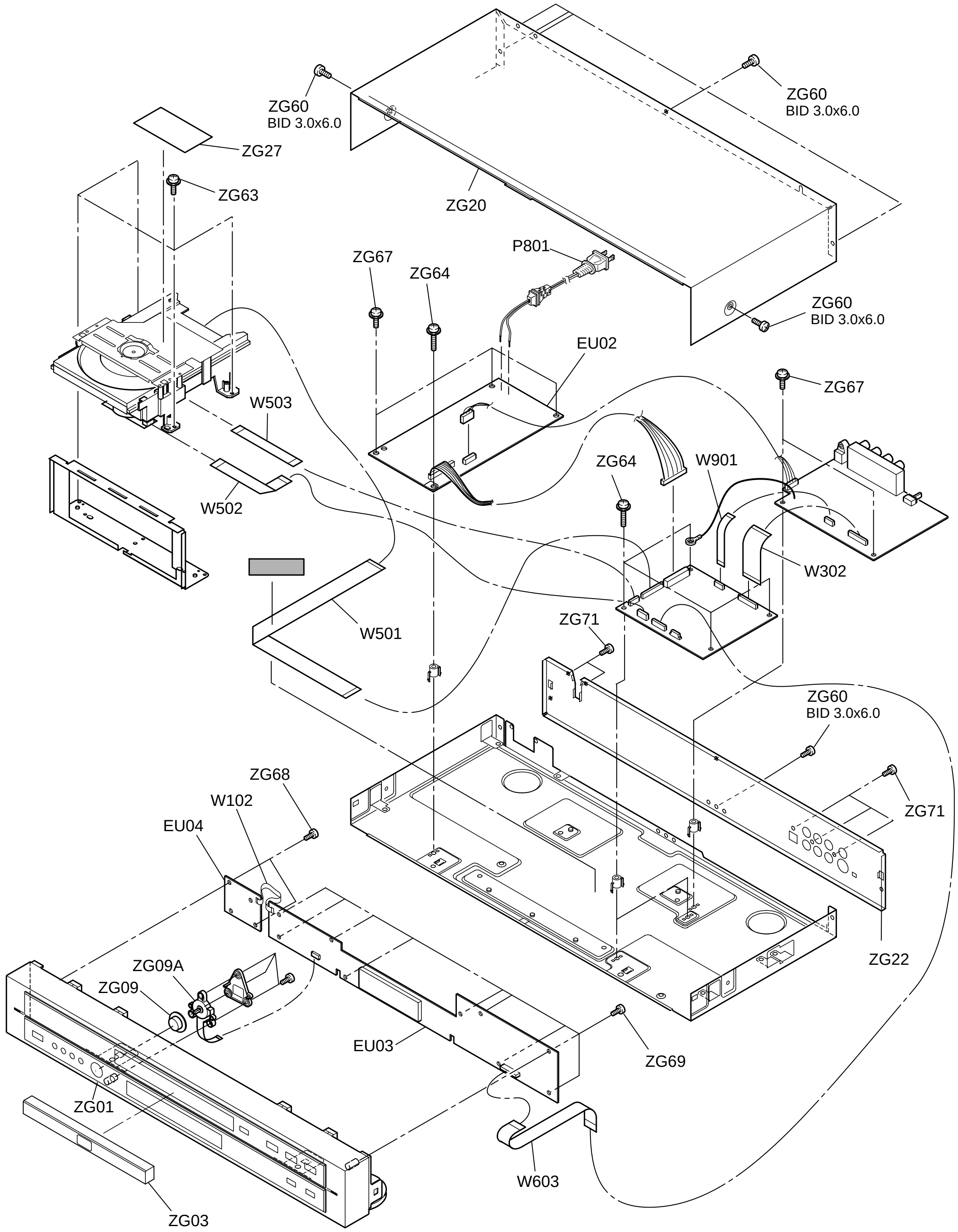

ZG60
BID 3.0x6.0
ZG60
BID 3.0x6.0
ZG27
ZG63
ZG20
P801
ZG67
ZG64
ZG60
BID 3.0x6.0
EU02
ZG67
W503
ZG64
W901
W502
W302
W501
ZG71
ZG60
BID 3.0x6.0
ZG68
W102
ZG71
EU04
ZG09A
ZG09
ZG22
EU03
ZG69
ZG01
W603
ZG03

Fig. 4-4-4

4-5. Mechanism Assembly (Type B)

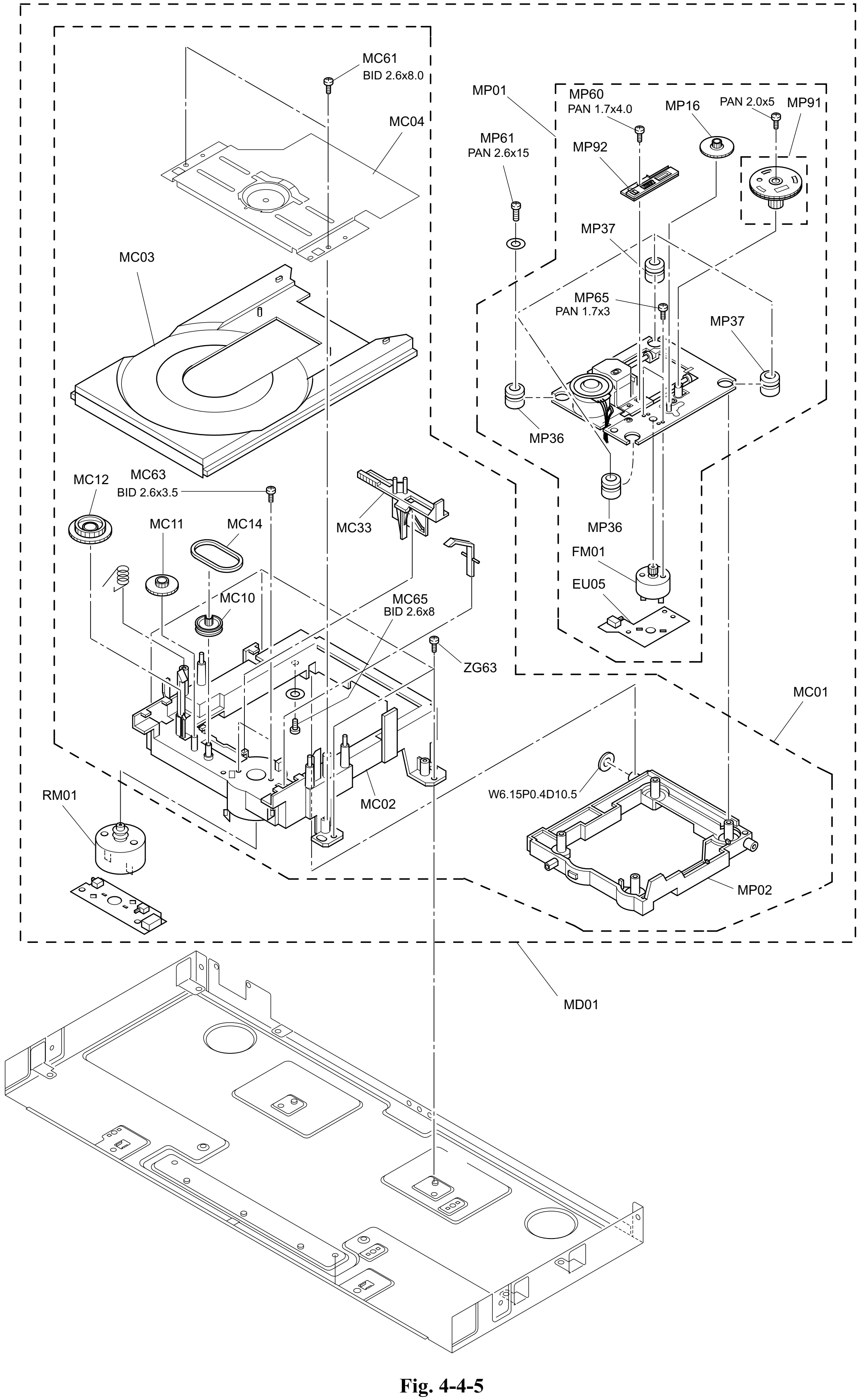

MC61
BID 2.6x8.0
MC04
MC03
MP01
MP60
PAN 1.7x4.0
MP16
PAN 2.0x5
MP91
MP61
PAN 2.6x15
MP92
MP37
MP65
PAN 1.7x3
MP37
MP36
MP36
FM01
EU05
MC12
MC63
BID 2.6x3.5
MC11
MC14
MC33
MC10
MC65
BID 2.6x8
ZG63
MC01
W6.15P0.4D10.5
RM01
MC02
MP02
MD01

Fig. 4-4-5

5. PARTS LIST

- MECHANICAL PARTS -

	LOCATION NUMBER	PART NUMBER	DESCRIPTION	
!	MD01	79070499	DVD Mechanism	Single/CD-R
	W302	79080184	Cable,Flexible	FFC,19P,L70
	W501	79080273	Cable,Flexible	FFC,23P,L297
	W502	79080192	Cable,Flexible	FFC,6P,L110
	W503	79080299	Cable,Flexible	FFC,8P,L115
	W603	79080300	Cable,Flexible	FFC,13P,L115
	W901	79080227	Cable,Flexible	FFC,7P,L70
!	ZF01	79078085	Remote Control Unit,SE-R0070	
!	ZF01	79078086	Remote Control Unit,SE-R0073	
!	ZF10	79077213	Owners Manual	English
!	ZF10	79077217	Owners Manual	English/French
!	ZF11	79077218	Additional Manual	English
!	ZF11	79077223	Additional Manual	English/French
!	ZF12	79077220	Owners Manual	Spanish
	ZG01	79071266	Front Panel(Silver)	
	ZG01	79071270	Front Panel(Black)	
	ZG03	79071267	Panel,Tray(Silver)	
	ZG03	79071271	Panel,Tray(Black)	
	ZG09	79071275	Key,Cursor(Silver)	
	ZG09	79071276	Key,Cursor(Black)	
	ZG20	79073096	Cover,Top(Silver)	
	ZG20	79073095	Cover,Top(Black)	
	ZG27	79070469	Label,Caution	
	ZZ03	79080074	Kit,Data Update	

	LOCATION NUMBER	PART NUMBER	DESCRIPTION		
			- ELECTRICAL PARTS -		
	EU01	79083126	PC Board Assy	Main	
			- INTEGRATED CIRCUITS -		
	IC301	79040007	IC	TC7S08F	
	IC302	79040007	IC	TC7S08F	
	IC303	79040007	IC	TC7S08F	
	IC304	79040248	IC	S-80145CLMC-J16	
	IC305	79040356	IC	W986432DH	
	IC306	79040398	IC	ZR36750	
	IC307	79040357	IC	S-24C02AFJA-TB	
	IC308	79040357	IC	S-24C02AFJA-TB	
	IC309	79040284	IC	MBM29DL324BD	
	IC310	79040399	IC	MM1561JFBE	
	IC312	79040354	IC	TC74VHCT244AFTE	
	IC313	79040354	IC	TC74VHCT244AFTE	
	IC401	79040282	IC	TC94A03F	
	IC402	79040323	IC	M11B11664A-30T	
	IC502	79040296	IC	TA1323F	
	IC503	79040324	IC	BA5813FM-E2	
	IC504	79040014	IC	TA75S01F	
	IC902	79040365	IC	AD1958YRS	
			- TRANSISTORS -		
	Q301	79050018	Transistor,Chip	2SA1162	
	Q302	79050018	Transistor,Chip	2SA1162	
	Q303	79050018	Transistor,Chip	2SA1162	
	Q304	79050018	Transistor,Chip	2SA1162	
	Q305	79050018	Transistor,Chip	2SA1162	
	Q306	79050018	Transistor,Chip	2SA1162	
	Q307	79050043	Transistor,Chip	RN1402	
	Q308	79050001	Transistor,Chip	RN2402	
	Q309	79050043	Transistor,Chip	RN1402	
	Q310	79050079	Transistor,Chip	2SA1213-Y	
	Q311	79050016	Transistor,Chip	2SC2712	
	Q401	79050085	Transistor,Chip	2SC3326-B	
	Q501	79050015	Transistor,Chip	HN1B01F	
	Q502	79050015	Transistor,Chip	HN1B01F	
	Q503	79050079	Transistor,Chip	2SA1213-Y	
	Q504	79050043	Transistor,Chip	RN1402	
	Q505	79050014	Transistor,Chip	HN1C03F	
	Q506	79050085	Transistor,Chip	2SC3326-B	
			- DIODES -		
	D501	79060022	Diode,Chip	1SS368	
	D502	79060022	Diode,Chip	1SS368	
	D901	79060102	Diode	1SS184	
			- MISCELLANEOUS -		
	X901	79089003	Oscillator	SMD49,27MHz	
!	EU02	79085104	PC Board Assy	Power	
			- TRANSISTORS -		
	Q801	79050095	Transistor	FS5KM-16A	
!	Q802	79040327	IC	TA1319AP	
!	Q803	79050041	Photo Coupler	TLP621(GR)	
!	Q804	79050041	Photo Coupler	TLP621(GR)	
	Q821	79040146	IC	TA76431S	
	Q822	79050076	Transistor	2SA1585STP-Q	
	Q823	79050099	Transistor	2SA1020-Y	
	Q824	79050077	Transistor	2SC1740STP-Q	
	Q825	79050040	Transistor	2SA1048-Y	
	Q826	79050077	Transistor	2SC1740STP-Q	
	Q827	79040288	IC	PQ05RD11	
	Q828	79040289	IC	PQ3RD13	
	Q830	79050008	Transistor	RN1201	
			- DIODES -		
!	D803	79060087	Diode	S1WB(A)60	
	D805	79060069	Diode	HER108G	
	D806	79060070	Diode	HT15G	
	D807	79060080	Diode	AK06	
	D808	79060029	Diode,Zener	6.8V	
	D821	79060073	Diode	SR306	
	D822	79060073	Diode	SR306	
	D824	79060070	Diode	HT15G	
	D825	79060071	Diode	HER152G	
	D826	79060070	Diode	HT15G	
	D827	79060070	Diode	HT15G	
	D829	79060072	Diode	1N4005S	
	D830	79060080	Diode	AK06	
	D831	79060080	Diode	AK06	
	D832	79060027	Diode,Zener	UZ12BSB	
	D833	79060027	Diode,Zener	UZ12BSB	
	D834	79060005	Diode,Zener	UZ11BSB	
	D835	79060007	Diode,Zener	UZ3.0BSB	
	D836	79060072	Diode	1N4005S	
	D841	79060072	Diode	1N4005S	
			- CAPACITORS -		
!	C801	79020198	Cap,Film	10000pF	M 275V
!	C802	79020198	Cap,Film	10000pF	M 275V
!	C803	79020193	Cap,Ceramic	220pF	K 250V
!	C804	79020193	Cap,Ceramic	220pF	K 250V
!	C811	79020193	Cap,Ceramic	220pF	K 250V
			- RESISTORS -		
			- MISCELLANEOUS -		
!	F801	79087008	Fuse	1.6A,125V	
!	F821	79087013	Fuse	3.00A,125V	
!	F822	79087009	Fuse	3.50A,125V	
!	F823	79087009	Fuse	3.50A,125V	
!	P801	79088028	Power Cord	UL	
!	RF821	79030015	Res,Fusible	2.2ohm	J 1/4W
!	RF822	79030125	Res,Fusible	3.9ohm	J 1/4W
!	RF824	79030015	Res,Fusible	2.2ohm	J 1/4W
!	T801	79010025	Line Filter	183Y0R5	
!	T802	79010026	Power Transformer	SRW3020ED5-210	
	EU03	--------	PC Board Assy	Front	
			- INTEGRATED CIRCUITS -		
	IC101	79040394	IC	TMP86CK74AFG-3PV7	
			- TRANSISTORS -		
	Q101	79050086	Transistor,Chip	RN2202	
			- DIODES -		
	D101	79060094	Diode,LED	SLR-343MC	
	D103	79060015	Diode	1SS133	
			- MISCELLANEOUS -		
	A101	79089167	Display,FL	8-BT-230GNK	
	BZ101	79089156	Buzzer	PKM13EPY	
	MT101	79089146	Module,RMT	GP1U261XK	
	S101	79089157	Switch,Tact	RDSY0010	
	S103	79089020	Switch	Push	
	S104	79089020	Switch	Push	
	S105	79089020	Switch	Push	
	S106	79089020	Switch	Push	
	S107	79089020	Switch	Push	
	S108	79089020	Switch	Push	
	S110	79089020	Switch	Push	
	S111	79089020	Switch	Push	
	S112	79089020	Switch	Push	
	S117	79089020	Switch	Push	
	S120	79089020	Switch	Push	
	X101	79089095	Oscillator,Ceramic	8MHz	
	EU04	--------	PC Board Assy	Power Switch	
			- TRANSISTORS -		
	Q181	79050086	Transistor,Chip	RN2202	
	Q182	79050086	Transistor,Chip	RN2202	
			- DIODES -		
	D181	79060033	Diode,LED		
			- MISCELLANEOUS -		
	S181	79089020	Switch	Push	
	EU05	--------	PC Board Assy	Output	
			- INTEGRATED CIRCUITS -		
	ICX01	79040401	IC	MM1568AJBE	
	ICY01	79040044	IC	NJM4580E	
	ICY02	79040074	IC	TC74HCU04AF	
	ICY03	79089159	IC	TOTX179	
			- TRANSISTORS -		
	QX01	79050043	Transistor,Chip	RN1402	
	QX02	79050043	Transistor,Chip	RN1402	
	QX03	79050043	Transistor,Chip	RN1402	
	QX04	79050043	Transistor,Chip	RN1402	
	QY01	79050043	Transistor,Chip	RN1402	
	QY02	79050001	Transistor,Chip	RN2402	
	QY03	79050001	Transistor,Chip	RN2402	
	QY04	79050014	Transistor,Chip	HN1C03F	
	QY05	79050016	Transistor,Chip	2SC2712	
	QY06	79050018	Transistor,Chip	2SA1162	
	QY07	79050018	Transistor,Chip	2SA1162	
	QY08	79050016	Transistor,Chip	2SC2712	
			- DIODES -		
	DX06	79060028	Diode,Chip	1SS226	
	DX07	79060028	Diode,Chip	1SS226	
	DY01	79060022	Diode,Chip	1SS368	
			- MISCELLANEOUS -		

LOCATION NUMBER	PART NUMBER	DESCRIPTION	
JX01	79089094	Plate,Jack	
SX01	79089158	Switch,Slide	SSAA110200

LOCATION NUMBER	PART NUMBER	DESCRIPTION

TOSHIBA CORPORATION
1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO 105-8001, JAPAN